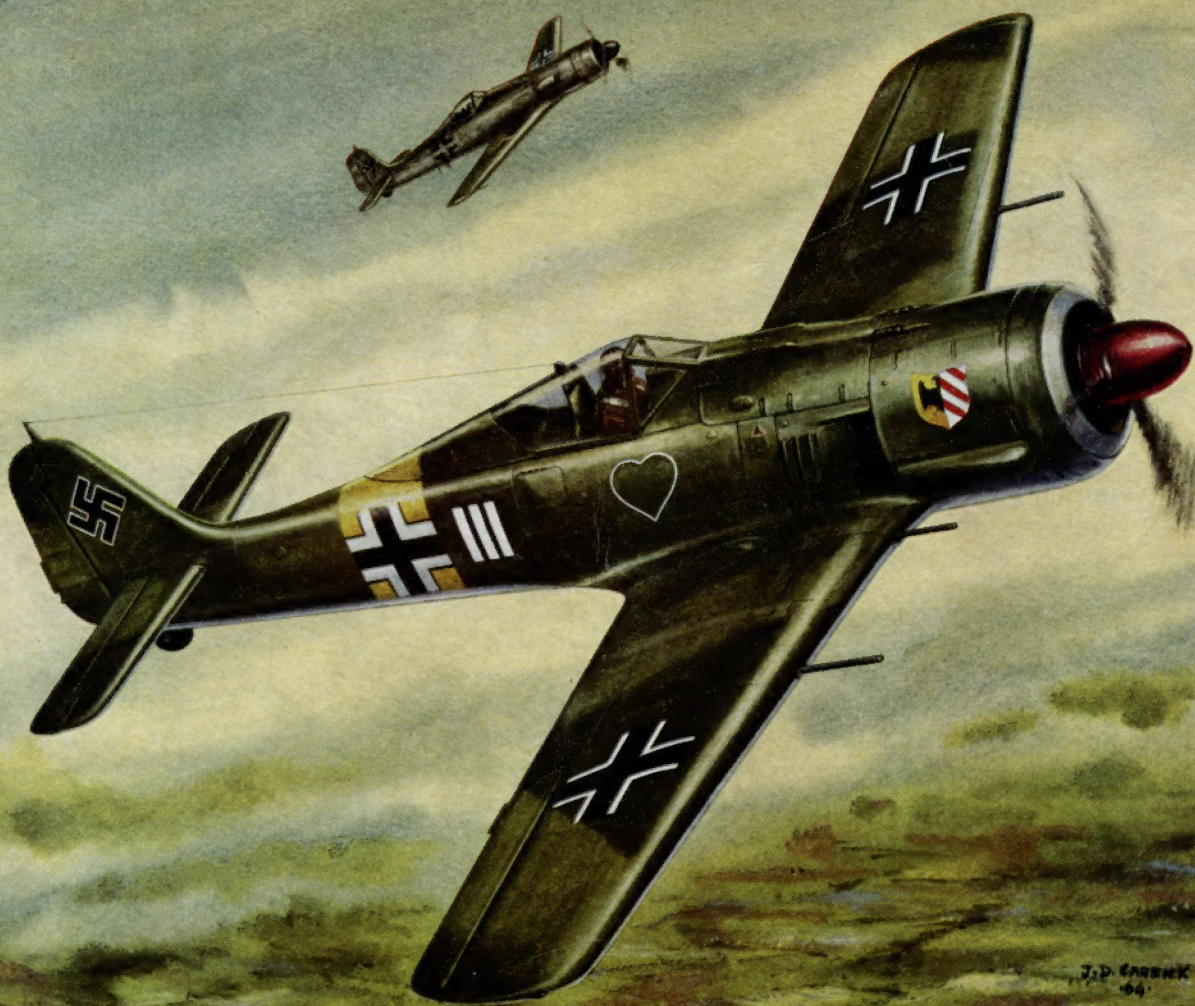


OCTOBER, 1965

AIRFIX

magazine FOR PLASTIC MODELLERS

MONTHLY **1/6**



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THIS
ISSUE**

Profile—the story of the Focke-Wulf 190
How to make a Churchill assault bridge



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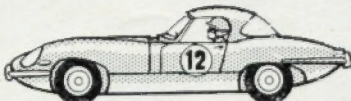
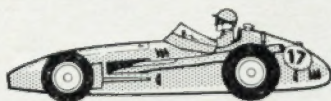
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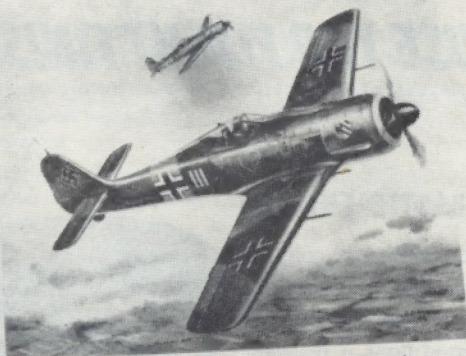
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Compiled and written by HEINZ J. NOWARRA
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Based on Original Drawings by R. HAUTSCHILD and U. WARZECIA
Colour Paintings by H. LÖBNER
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TO BE PUBLISHED
9th OCTOBER 1965

BY H. J. NOWARRA

'The Focke-Wulf 190—a Famous German Fighter' contains 212 pages, each 8½"x11", all printed on glossy art paper. The book is bound in stiff boards gilt blocked, and wrapped in an attractive dust jacket in full colours. Weight of book is nearly 2½lb.

Four pages in full colour illustrate twelve representative aircraft in their various camouflage schemes and unit and squadron markings according to role and theatre of operations.

Three view 1/72nd scale tone paintings, each with wing and fuselage sections, appear for the following aircraft:

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Fw 190 V-2	Fw 190 A-5/UI2 (A-6/R1)	Fw 190 V-19	Fw 190 G-3/Bv246
Fw 190 V-5k	Fw 190 A-5/UI4	Fw 190 A-8/UI	Fw 190 D-9
Fw 190 A-1	Fw 190 A-6/R3	Fw 190 A-8/Doppelritter	Fw 190 D-13
Fw 190 A-3	Fw 190 A-6/R6	Fw 190 F-8	Ta 152 C
Fw 190 A-5	Fw 190 V-13	Fw 190 F-16	Ta 152 H

All the aircraft in the above-listed tone paintings carry their appropriate camouflage and marking schemes

Starting by tracing the history of the original Focke-Wulf company in pre-war days, this book follows through with the designs that led ultimately to the Fw 190, in parallel with the exciting story of Kurt Tank himself. It acquires the status of a truly great work by the fact that it is not only a detailed study of the design, research and engineering aspect of an aircraft type, but also the intensely human story of the German fighter force in the 1939-1945 War, for it was the selfless devotion of its pilots, engineers and mechanics that made the Fw 190 such a dominant factor in the Luftwaffe and, indeed, on the course of that war.

Photographic illustrations in profusion, a characteristic of all Harleyford books, excel in this latest work which presents over 360, many from private collections never before published, on all aspects of the Fw 190—showing the men who flew and maintained the various versions on all the various war fronts.

Heinz J. Nowarra, the author, has stated that never before has he been able to present such a detailed history of

a single aircraft type. The reader, as he turns the pages of this book, will find this to be abundantly true, for the author has indeed produced a classic story to portray in very considerable detail a history of this famous German fighter, and much of the air fighting in the 1939-1945 war as seen from the German point of view.

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FOR PLASTIC MODELLERS

Volume 7, Number 2

October, 1965

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COVER PICTURE

In this fine painting, by J. D. Carrick, are shown the most prominent types in the Focke-Wulf series. In the foreground is an Fw 190A-4 as flown on the Russian front in 1942/3 by pilots of I Staffel, I Group of Jagdgeschwader 54, the famous 'Greenhearts', which was led by top-scoring Ace Commodore Hannes Trautloft. In the background is shown the last version of the Ta 152H-O, of which only a few versions saw fighting service, yet which proved its superior qualities. (Painting reproduced by permission of Harleyford Publications Ltd, publishers of Focke-Wulf 190—the story of a famous fighter, by H. J. Nowarra.)

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AIRFIX magazine is published on the fourth Wednesday of each month. Annual subscription rate 24s. (Second Class postage paid at New York Post Office, NY.)

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NEXT PUBLICATION DATE: October 27, 1965

October, 1965

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The Britten-Norman BN-2 Islander shows a few external modifications since its appearance at the Paris Air Show. Engine nacelles have been lengthened, the span has been increased and a nose probe has been added for flight test purposes.



AT a time when the British aircraft industry is split into a few large groups, and with the prospect of large contracts for military or civil aircraft not forthcoming, it is pleasing to hear of a relatively small firm producing an aircraft which, after its first flight, has brought quite substantial orders.

The enterprise of John Britten and Desmond Norman to produce the BN-2 Islander, which is now selling to a world keen to find a replacement equal to the ageing Rapide, led me to visit their factory at Bembridge Airport recently, to see for myself how their company Britten-Norman Ltd came to produce the aircraft, which will shortly be entering full production.

FIRST VENTURE

I met Mr Norman, whose father founded Airwork in 1930, in his modest office, which is part of the large hangar where the prototype Islander was built. He told me something of the history of the company, which started several years ago following Mr Norman's apprenticeship at the De Havilland Technical School. It was here that he met his present partner, John Britten. They teamed up to produce a light aircraft, the BN-1F, which was intended to be produced as a kit of parts for light aircraft enthusiasts.

Their first efforts were not as successful as they had hoped, for the aircraft crashed after its third flight follow-

ing an engine failure. The BN-1F was rebuilt with a more powerful engine and an additional four feet on the wing-span but, although it flew well after that, there was no call for this type of aircraft. So many government surplus Tiger Moths and similar types came on the market at the time that it was cheaper to buy secondhand rather than new. The BN-1F still exists, but is now stored in the roof of a boat yard in Bembridge.

CROP DUSTING

The Britten-Norman partnership then turned its attention to crop spraying. Although working part-time, Desmond Norman was employed as export assistant at the Society of British Aircraft Constructors at the time, they designed and built the accessories for converting war-surplus Tiger Moths as crop dusting aircraft for export to New Zealand. At the same time, they developed a spraying gear capable of delivering a controlled droplet size, thus eliminating the considerable wastage from conventional methods. The new equipment was given the name Micronair and, since the first one was produced in 1955, more than 500 sets have been sold in 42 countries, including the United States, bringing in approximately £45,000 each year.

Much of the help and advice on the early work in developing the Micronair equipment came from Mr James McMahon, an Australian who was also a well-known agricultural pilot. As the first sets became available, a chance visit by Mr Frank Mann, a fruit importer with offices in Exeter, brought another interest to the partner's now fast-growing business. Mr Mann had a contract for crop spraying in the Sudan, and Britten-Norman undertook to work with him and produced both the crop spraying equipment and the aircraft. The enterprise was a great success, and Mr McMahon and Mr Mann became directors of the company.

This was the birth of Crop Culture (Aerial) Ltd, a company which now has 65 aircraft regularly employed throughout the world on crop spraying contracts. There are several subsidiary companies, and operations are at present going on in Australia, Nigeria, Colombia, the Camerouns, Jamaica and Ecuador to mention a few. The Snow S-2C is the main aircraft type used, as it is speci-

AIRFIX magazine

ally designed for agricultural work. Britten-Norman act as world distributors for the aircraft outside the United States.

RAPIDE REPLACEMENT

While working in the Cameroons, Crop Culture (Aerial) Ltd was asked to run a small airline for short-haul work, and an Aztec, Apache and Dornier 28 were acquired. The government of the Cameroons eventually took over the airline, but it started the germ of an idea in the minds of the resourceful Britten-Norman directors. When forming the aircraft fleet, they could find no aircraft which would satisfy the needs of the operator wishing to take a large number of passengers, freight or a mixture of both. Large aircraft such as the Grand Commander, Queen Air and Dove were far too expensive, and the smaller executive aircraft could not carry enough passengers for the stages to be economical.

It was obvious that there was a world demand for an aircraft that was similar to the pre-war Rapide, and two years ago John Britten and Desmond Norman began detailed planning for the production of an aircraft of this type, to be designated the BN-2.

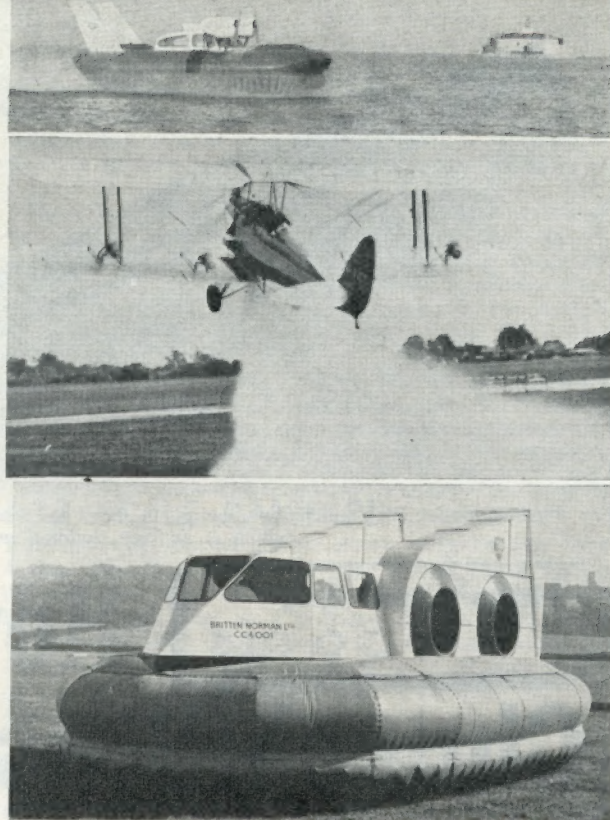
With the exception of a few items of heavy machining work, the whole construction of the prototype, G-ATCT, was undertaken at the Bembridge headquarters of the company. Employees worked round the clock for several months to get the BN-2 ready on schedule, and the first flight was made on Sunday, June 13, by Mr Britten and Mr Norman, with development flight test engineer Andrew Coombs on board. The flight lasted 70 minutes and there followed a further eight hours in the air before a special category C of A was issued allowing the BN-2 to take part in the Paris Air Show.

The simplicity of design in the Islander, as it was called at a press conference just before leaving for Paris, is its chief feature. Even so, the aircraft can hardly be called ungainly, and in the light of recent tests improvements have been made to the structure which adds to its attraction. The nacelles containing the two Rolls-Royce Continental engines have been lengthened, there is a revised air intake system on the front of the cowlings and an additional two feet have been added to the wingspan.

When I visited Britten-Norman last month a total of 21 Islanders had been sold. An initial production batch of 25 aircraft has been laid down and the first production aircraft is due to fly in August, 1966. From then on one aircraft a week will be rolled out of the factory. Britten-Norman are quoting a basic price of £17,500 for the Islander, which is fantastically low when compared to a possible £60,000 for an aircraft of comparative size. With full radio, 10 seats and all the present-day additions demanded by the authorities for airline operation in bad weather, the total price is still only just over £20,000.

HOVERCRAFT

The Britten-Norman company has not confined its activities entirely to crop dusting and aircraft manufacture. During one of their crop dusting contracts in Jamaica, the problem of moving the banana crop from the fields to port proved a difficult one, and a great deal of the harvest was lost. The versatile directors of Britten-Norman saw the use of air cushion vehicles as a possible answer to the difficulties, and forthwith designed and built the CC-1 Cushioncraft. This first experiment, like their first venture into aircraft production, proved unsuccessful but, fired with the



Top: The Cushioncraft CC-2 at speed in the Solent. This one belongs to the Britten-Norman Group. Others are owned by FVRDE and RAE Bedford. **Centre:** Micronair atomisers seen on the wings of a Tiger Moth revolutionised the crop spraying industry by economising on the spreading of fertilisers. **Above:** The latest in Cushioncraft ACVs is the CC-4, a much smaller vehicle being developed for Hovercraft Development Ltd.

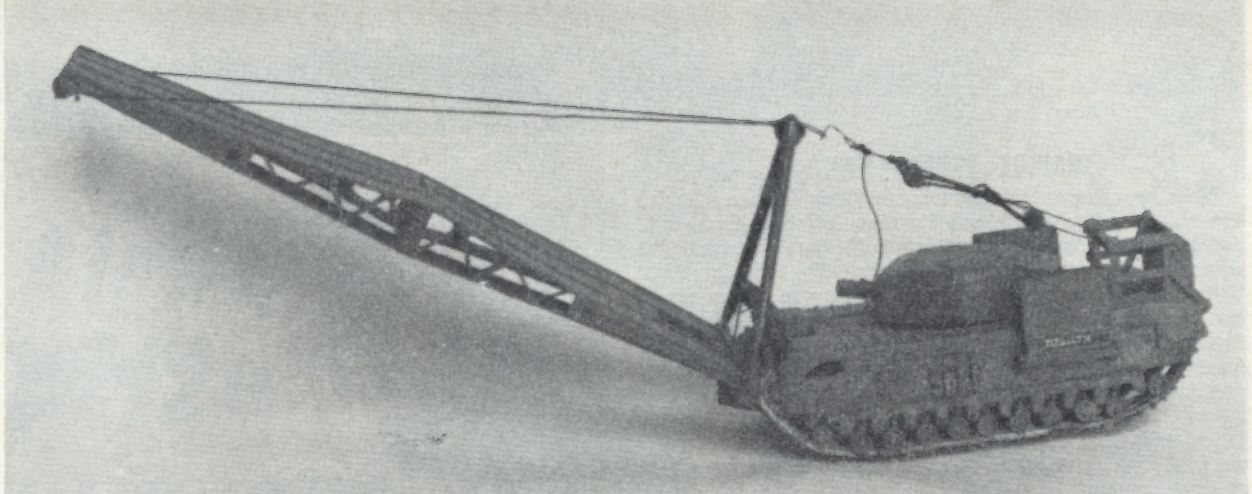
idea of workable ACV designs, they went on to produce the CC-2, incorporating much of the know-how acquired from their first venture.

The CC-2 is a ten-seat commercial hovercraft which has since been built for the FVRDE at Chobham and the RAE at Bedford. Fitted with Ardern engines, similar to those flown on the little Turbulent aircraft, the CC-2 is now used for research and development by the two government departments and by Britten-Norman themselves. Subsequently, it has been fitted with a flexible skirt and re-engined with American-built Continentals.

The CC-4 is the latest design to be built by Cushioncraft Ltd at their Bembridge boat yard. This is a much smaller vehicle, constructed for Hovercraft Development Ltd, and derives its forward speed from low pressure jets assisted by four fans which provide the lift.

Work is at present going on with a CC-5 design, which Britten-Norman hope will be their first fully commercial and saleable ACV. The current limiting factor is, of course, the available engine power without going to the sophistication of a gas turbine. So far, the Rolls-Royce V8 is favoured, but few other details of this latest venture are available.

No visitor to the Bembridge factory of Britten-Norman can fail to be impressed by the refreshingly direct approach of not only the directors but also every man on the staff. They form a well balanced team which should provide the British aircraft industry with an example worth noting.



The finished model. This particular example is fitted for wading with trunking on radiators and extended exhausts, all of which is entirely optional and can be omitted if desired.

Military modelling

by C. O. ELLIS

How to make a Churchill assault bridge

THOSE who attended the National Model Show at the Horticultural Hall in August will already have seen this month's conversion 'in action' on the military layout displayed on the Airfix stand. This featured a beach head with British troops landing on German-held territory (see page 60) in an imaginary part of NW Europe. Crossing the beach was made difficult by the presence of a wide anti-tank ditch, and to overcome this a Standard Box Girder (SBG) bridge had been brought ashore by an AVRE of the RE assault squadron engaged in the action. Once in position across the ditch, it provided a quick and effective exit from the beach, allowing the following armour to move quickly in-land. In different circumstances, the same type of bridge could have been used, for example, to allow tanks to climb from the beach to the promenade or to surmount a sea wall or fortification.

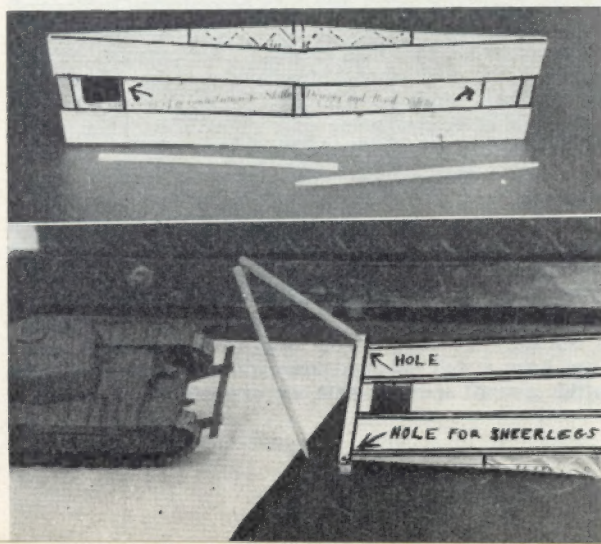
The SBG was among the most important of the items of special equipment evolved for the Normandy landings and the subsequent campaign in NW Europe. It was simple to produce

and required no complicated mechanism for operation. Carried by an adapted Churchill AVRE, it was included in most Royal Engineers armoured assault squadrons for the invasion of Europe. In model form, this particular equipment can be made to work like the real thing, and is definitely a useful piece for war games.

Start off by making up the AVRE carrier vehicle, following the normal Airfix Churchill kit instructions, except that the rear half of the hull should be stuffed with Plasticine or other suitable ballast before final assembly. The vehicle employed in this particular case was a Churchill III or IV, so the hull must be modified accordingly. This entails filing off the circular escape doors—but not the hinges—on each side, and replacing them with square doors, 7 mm x 7 mm in area, cut from thin card or paper. The bow machine gun can be omitted if desired, but whether or not you do this, you will need a small plate of *appliqué* armour in front of the machine gun position. A template for this is shown at G.

Next cut out a square of card, 8 mm x 8 mm, and cement this above the co-driver's (left hand) hatch position in place of the hatch flaps provided in the kit. This now represents the sliding hatch used for loading the Petard mortar with which the vehicle is armed. Then make up the carrier frame on the rear hull decking as shown at F. This is the same width (20 mm) as the hull, with an arm on each side at the rear carried down to join the towing horns, as shown. A hole should be drilled in the front upper girder to take the bridge rigging, this being done before assembly. I used styrene sheet for this work, cut into

Top, left: Underside view of the SBG under construction, showing balsa wood supports, girder bracing, styrene card strip, and cocktail stick. Small arrows show optional extra supports from card strip. The thicker kind of invitation card is ideal material for the bridge. **Left:** The AVRE showing modifications described. Petard mortar can be omitted if desired. Note beading (outlined) on bridge, and fitting for sheerlegs.



strips of the correct width. Finally, cut off the front dustguards immediately ahead of the idler axles.

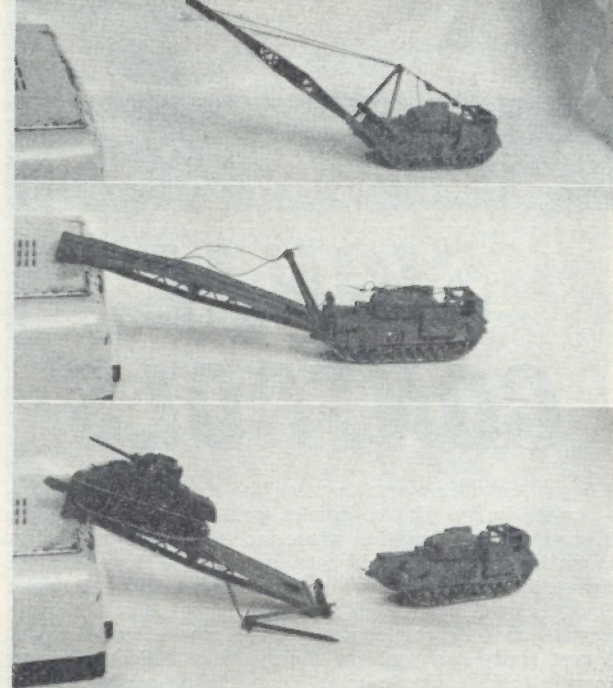
Next, take the turret in hand for modification. If you want a Churchill III, use the turret as it comes, with the exception that the cupola should be omitted and replaced by a hatch of the same diameter cut from card and provided with periscopes. Now cut off the 75 mm gun barrel, leaving a stub of 3 mm on the mantlet. Then cut an 8 mm length of empty Biro tube (or plastic of the same diameter) and cement it to the end of the gun stub to form a Petard mortar. All that remains is to cut out a small triangle of card, 4 mm long and 3 mm across the base, and cement it to the right-hand side of the mortar barrel, opposite the co-axial machine gun. The apex is attached to the mantlet, and this triangular plate is used to swivel up the mortar barrel for reloading through the sliding hatch in the hull.

The Churchill IV had a cast turret, as in my model, and this means that all the turret edges must be filed to give a rounded appearance. The plastic is thick enough here to allow this modification.

THE BRIDGE

Though the SBG bridge was quite a simple affair it is a daunting prospect for the modeller because of the extensive cross-bracing which was a feature of the real thing. Essentially, the bridge consisted of two separate ramps or trackways braced together by girders so that the complete bridge was wide enough to take a tank. This left a gap in the middle, which further complicates construction. There is, however, a legitimate 'short cut' which resolves all these problems, and that is simply to model the bridge with planking let into the gap between the two ramps. This was sometimes done on the real bridge when narrow vehicles, like Jeeps, were to cross it. In practice, this means that the whole top surface of the bridge can be modelled in one piece, with strips of styrene sheet to represent the beading on the edges of the trackways.

Drawing A gives a top view and shows the general idea. Some of the planks are removed from the inner end of the decking to give a view ahead for the driver; the missing planks are replaced, if necessary, when the bridge is in position. Total length of the

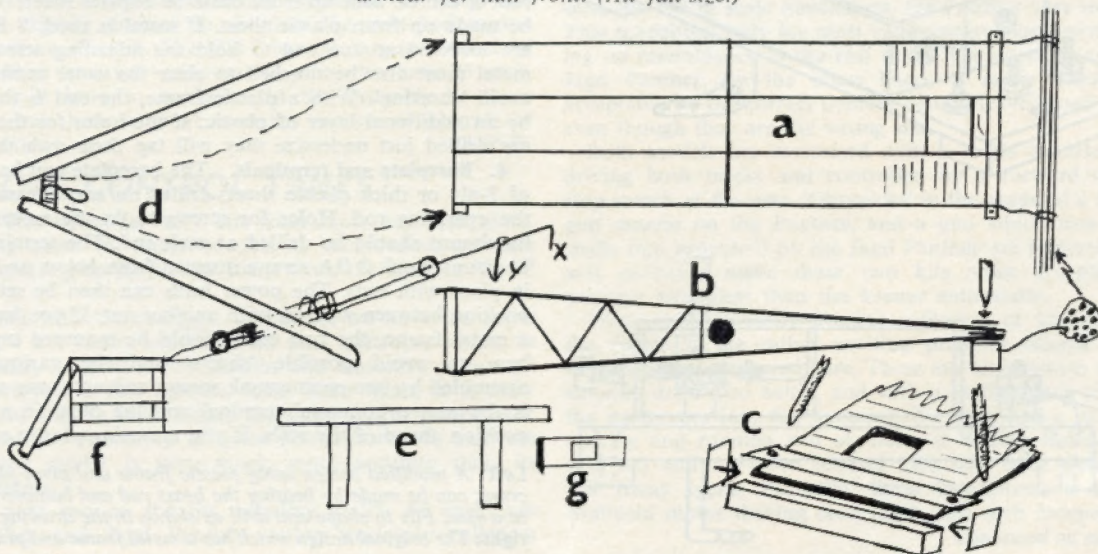


How to climb a promenade, demonstrated by the model. Note the sheerlegs falling away and the small fascine. Bridge can be used on scale heights up to 15 ft and span 30 ft gaps. The Sherman seen here is fitted with bocage cutters.

bridge top is 144 mm, and this can be cut out of card and marked as shown at A. The planking can be scribed in with scissors or a knife, and the planks are of irregular width. Take out the 'missing' planks with a knife, and then bend the card in the middle. Meanwhile, cut out two separate lower trackways to match those on the top deck. The whole lot is cemented together as shown in the picture, with a strip of balsa wood across the centre and very thin strips 'sandwiched' at the ends. These

Continued on page 41

Key to drawings: A—Plan view of SBG (bridge) showing cut-out observation section, fascine and fittings (half full-size). B—Side elevation of half SBG. Other half same, but without fascine or sheerleg fitting (full-size). C—Assembly of SBG inner end, showing sheerleg fitting, etc. Other end has beam only. D—Sheerlegs with cross-piece, wire loop and stays (dotted). E—Bridge support for Churchill AVRE front. F—Carrier frame, tackle, staple (X), release line (Y). G—Appliqué armour for hull front. (All full-size.)



SIGNAL CONTROLS

IF you have built signals using the methods I have described in the last two articles, you could quite easily be in the rather odd position where the switches or the motors to make them work could cost considerably more than the signals themselves. It is no good protesting about the price of commercial switches—if you want a neat, precision-made switch, you must be prepared to pay a reasonable price. But if cost really is a problem, there is little difficulty in very cheaply making simple on/off, two-way or passing contact impulse switches from scrap materials. This deals satisfactorily with the control of colour light signals, but the working of semaphore signals is a bit more difficult, because each arm needs a solenoid and the use of commercial point motors will result in a frightening bill.

Many years ago, when I was confronted with this very problem, I designed a signal motor which can very cheaply be made from scrap materials; many of these motors have been in use for a long time and are still doing their job satisfactorily, so I make no apologies for giving the details

again. This motor has other advantages; it was made for signal operation (and is unsuitable for points) and can be adjusted really accurately *after* installation. This is a real boon, as anyone who has tried connecting signals to point motors will know—you usually end up with the layout littered with wires of incorrect length and your signal adopting some highly unorthodox 'on' and 'off' positions. Also, the motor can be fitted above or below the baseboard. My original version was made before plastic was readily available, and involved a small amount of soldering; however, for this article, I have produced a 'Mark 2' model which does not need the use of a soldering iron.

The motor can be divided into four parts:

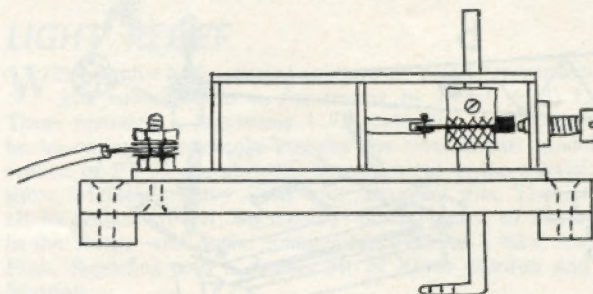
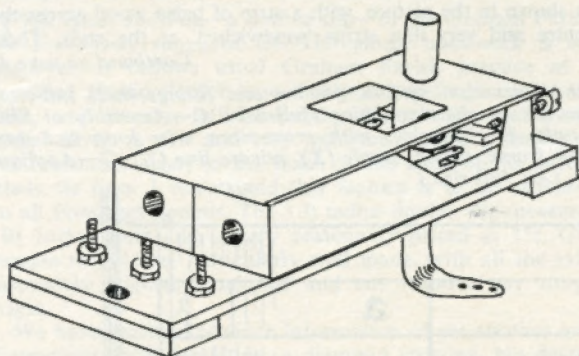
1. The coil unit. Two coils are, of course, needed. The hollow cores are made by rolling gummed parcel tape round a length of $\frac{1}{8}$ inch rod—about six turns is strong enough. The ends are $\frac{1}{2}$ inch squares of 0.04 inch plastic sheet. They are drilled to be a tight fit on the hollow tubes and are glued on with an adhesive such as Joy Plastic Cement or Uhu. The tubes are heavily shellacked. These bobbins are then wound with enamel insulated wire of about 34-38 swg. A radio shop which undertakes repairs will often sell you a faulty coil for a few pence—there is no need to buy new wire provided you test each coil you wind; if it fails to draw an iron nail smartly into the tube when connected to 16 volts AC or DC, then you have a faulty length of wire and you will have to strip it off and rewind the coil.

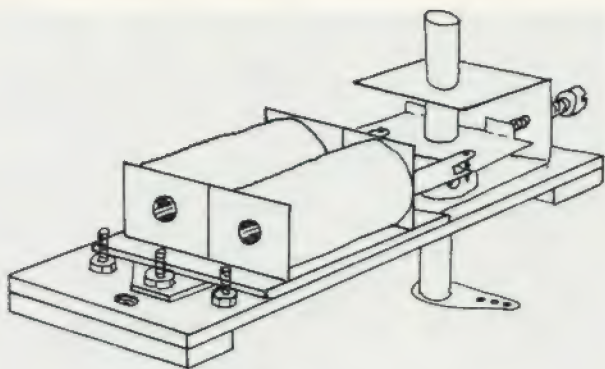
2. The armatures and pivot plate. Each armature is simply a round wire nail with the head cut off and a saw cut in one end. This slotted end is drilled for a pivot pin. I find it best to drill this hole before slotting with a hacksaw. The nails should be a really sloppy fit in the tubes. My original pivot plates were made of metal, soldered to a collar with a set screw. They had turned-up 'ears', against which the adjusting screws pressed. In the latest version, I used a brass bush from a Ripmax pulley with an 0.03 inch plastic plate. The bush has a knurled end which I force-fitted into the plate with plenty of impact adhesive to make a really good joint. Note the thickening to form the contact points for the adjusting screws. I understand that Ripmax are now selling collars with set screws for their $\frac{3}{32}$ inch rods—most useful and opportune for this purpose.

3. The frame. This provides bearings for the operating rod; it can be bent up from brass or tinplate sheet, or it can be made up from plastic sheet. If metal is used, 8 BA nuts are soldered at one end to hold the adjusting screws. The metal must also be notched to clear the outer terminals to avoid 'shorting'. With a plastic frame, the end is thickened by an additional layer of plastic; if the holes for the screws are drilled just undersize they will tap their own thread.

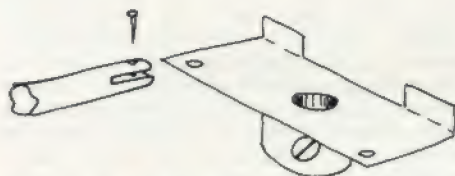
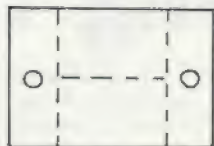
4. Baseplate and terminals. The baseplate can be a piece of 3-ply or thick plastic sheet, drilled an easy clearance for the operating rod. Holes for screws to fix the motor to the baseboard should be drilled at each end. The terminals can be countersunk 8 BA screws inserted from below and locked in place with nuts. The power leads can then be secured in position between washers with another nut. If you have used a metal frame, the two coils should be mounted on a sub-base to avoid possible 'shorts' and the various units assembled by two countersunk screws and nuts, one of which is the centre 'common' terminal and the other in a similar position ahead of the coils. If you are using plastic construc-

Left: A modified design using plastic frame and pivot plate. The crank can be made by heating the brass rod and hammering over in a vice. File to shape and drill as shown in the drawing. **Above, right:** The original design which has a metal frame and pivot plate.





< 3/4" >



tion, the units are simply cemented together. Two spacing strips are glued across the underside of the baseplate to allow clearance for the crank if the motor is installed on top of the baseboard.

INSTALLATION HINTS

Screw the motor in a suitable position (if *under* the baseboard, drill a hole with generous clearance for the operating rod). With the pivot arm in an approximate mid-position, connect up the crank to the signal with wire. Wire up the motor to power and adjust the throw to the correct 'on' and 'off' positions by means of the adjusting screws. Once the signal is working satisfactorily, seal the screws in place with a spot of paint (if a metal frame) or liquid cement (if plastic). This motor is for use with a passing contact switch *only*—the current to the coils must never be left on for more than a second or two.

The items I have described are intended to be used for operating model railway signals—though they could, of course, be adapted to work a variety of other items.

Copyright, Mike Bryant, 1965.

MODEL CAR SHOW POSTPONED

THE Model Car Show, originally scheduled for this October, has been postponed until the same time next year. Organisers—the Auto-Model Club—feel that they were perhaps a little early with their idea and that it would be better to postpone the Show so that a truly representative exhibition can be presented to the public in 1966. The Show's new date and venue will be announced shortly.

SPECIAL SUNDAY OPENING

THE Museum of British Transport, at Clapham, is to be specially opened again on a Sunday—October 10. When the last Sunday opening was held in April, several thousand enthusiasts attended, and this response has prompted the organising of this additional date. Admission will cost 5s and the Museum will be open from 10 am to 5.30 pm.

MILITARY MODELLING—Continued

are fitted between the upper deck and the lower trackways.

Now look at drawing B, which shows the side elevation of half the bridge. Cross-bracing is made from styrene sheet strips cemented in place with the edges showing. The narrower ends of the bridge are plated in, as shown, with a hole in each plate. Since drilling a hole here is rather difficult, I waited until the model was completed and then painted in a 'hole'.

Drawing C shows the next stage. Here lengths of strip wood are cemented below each end of the bridge. On the inner end *only* in addition a length of styrene sheet is cemented above the bridge, together with side pieces. Holes are drilled in the upper piece to take the ends of the sheerlegs, which support the bridge. Plastic cocktail sticks, cut to length, are just right for the sheerlegs, with a small scrap of plastic for the cross-piece. A wire loop is added and the legs are filed to a point at the ends so that they rest in the holes previously drilled out.

Now return to the AVRE which requires a support cemented to the front glacis plate for the SBG to rest on, as drawn at E. Once it is cemented in place, the model is ready for rigging, preferably after painting. You need a stay from each front corner of the bridge to the cross-piece on the sheerlegs. The sheerlegs are not cemented in position—they just stand in the holes—but the stays must be adjusted so that the legs stand at right-angles to the bridge. A dummy tackle is then made up, as shown in F, using a couple of Churchill road wheels to represent the pulley blocks. A 'Bambi' staple is bent to form a hook and is tied to the end of the tackle. This then engages in the wire loop on the sheerlegs so that the bridge can be slipped by pushing out the staple. Both the bridge and the sheerlegs then fall clear, and the vehicle can carry on fighting in the normal AVRE role.

Two final details are the dummy release line taken from the staple through the sliding hatch on deck, and the small fascine shown in A and B. This last item—made from broom bristles—is attached to, and falls with, the SBG to prevent the edges of the plank-covered trackways from being crushed by the tracks of climbing tanks.

An AVRE with SBG would invariably operate in conjunction with a fascine-carrying AVRE. For climbing heavy walls, the SBG would be placed in position by the carrier, after which the AVRE would climb the bridge and drop its fascine on the far side of the wall. Following tanks could thus climb the bridge and then drop on to the fascine and finally to the ground on the far side. Newer readers will like to know that a normal AVRE can be made by following the details given here for the bridge carrier, but omitting the special fittings.



STAGE 1 The first operation in modifying this kit is to cut out the cockpit. Personally, I prefer to see a detailed cockpit, and rarely put in a pilot. This, I feel, takes away much of the 'seeable' interest. The job is done with a knife, to cut away the large areas, followed by a file and sandpaper. An instrument panel is added from plastic card before the fuselage halves are joined.



STAGE 2 After having left the fuselage pieces to adhere properly, the oversized panel lines are filled in with body putty. This is applied liberally—you'll use at least a quarter of a tube to do the job properly, and care should be taken not to get the mixture into the fuselage gun troughs.



Modifying the

AFTER he has made up his first few kits, the aircraft model maker is usually a stickler for detail. He will cast aside, without further thought, the kit which is not to scale, or which is inaccurate, but once his ability to improve his models has been increased and his experience widened he will more than likely modify an existing kit into an accurate shape rather than discard it altogether.

Plastic moulding is an extremely ingenious process that produces quite remarkable results. But, when manufacturers have to work to particularly fine limits in, say, 1:72 scale, it is not always technically possible to reproduce every feature completely authentically. Moulding techniques are, however, constantly improving, but there are still a few kits that have been on the market for some time and which give room for improvement by the modeller himself. Some of the Airfix kits, including the Mosquito, Bf 109 and the early Spitfire, have been deleted from the list or their moulds have been improved. Others still need a few modifications in order to bring them into line with the rest of an accurate 1:72 scale collection, and the Gladiator is one of them.

The fuselage panel lines, the cockpit and the shape of the engine nacelle are perhaps the chief offenders to accuracy in this kit, and this article shows how these can be rectified. The methods used can be applied to any other kits which need odd items reshaped or improved, and it is hoped that not only the experienced model maker but the beginner, too, will use the suggestions given to improve his models.

Excellent reference can be found about the Gladiator in Francis Mason's book on the subject published by Putnam. William Green's *Fighters of the Second World War* also has the Gladiator featured, and from the information and photographs supplied it should be easy to improve your kit or, if you don't wish to go any further, to change the markings.

STAGE 3 Give the body putty 24 hours to dry thoroughly, then rub down the excess with wet-and-dry paper. This will have to be done to the wings and tail unit, where other holes caused by the needs of the mould should be filled. The resulting finish and places where the wings and tail unit need filling can be seen in later photographs.



STAGE 4 The wings and tail unit are now added to the fuselage. A cockpit seat is provided from another kit, and I found a small piece of balsa had to be added to the one I used to bring it up to the correct height. The engine nacelle is then rubbed down with wet-and-dry paper until the shape shown in the plan is achieved. This amounts to a much rounder angle on the front of the nacelle, and can only be reached by careful and patient application of the sandpaper. The canopy is added after the cockpit detail has been painted and any holes round the joint filled and rubbed down. The undercarriage legs are also added, but it is advisable to cut these from thick plastic card and shape them in the same manner as the originals, as those supplied with the kit are too thin in cross-section.

Gladiator

BY
ALAN W. HALL

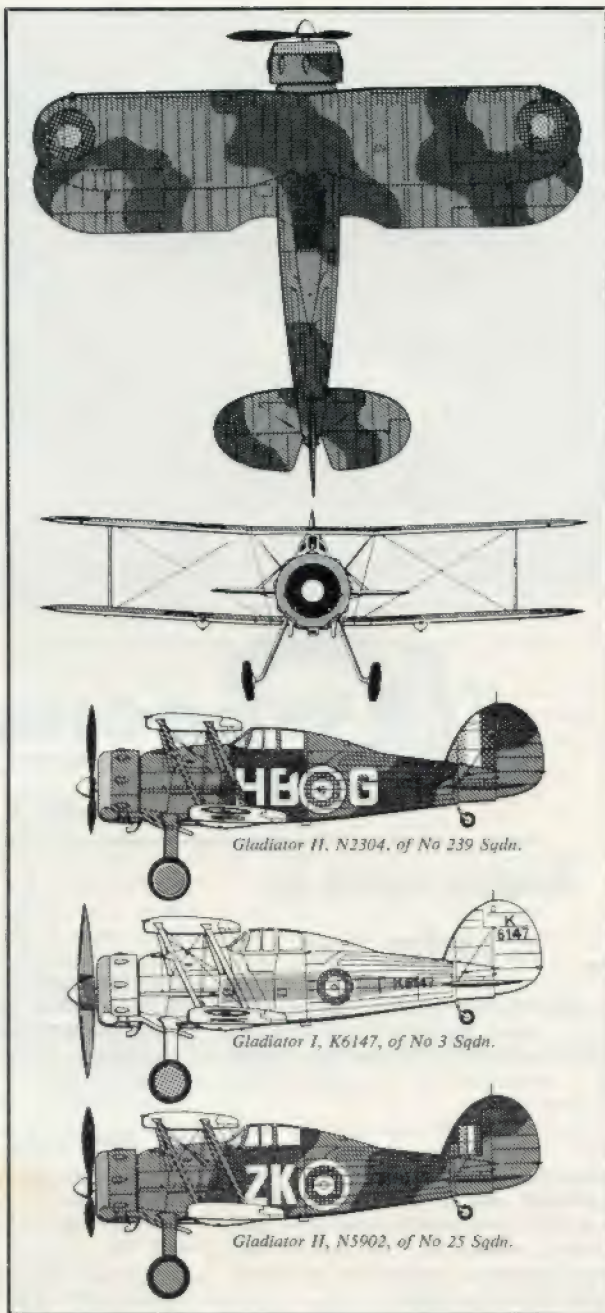


STAGE 5 The model is now completed with the addition of the top wing. Struts should be put in place and allowed to dry before the top wing is added. Interplane bracing from nylon thread can also be added, but only after painting has been completed.



Two Gladiators: the one in the foreground is completed exactly as per the original kit, except for cleaned-up fuselage, revised cowling and undercarriage legs and hollowed-out cockpit. The one in the background has a post-1938 camouflage scheme.

October, 1965



Gladiator II, N2304, of No 239 Sqn.

Gladiator I, K6147, of No 3 Sqn.

Gladiator II, N5902, of No 25 Sqn.

CAMOUFLAGE Pre-1938 Gladiators were painted silver overall with squadron markings on fuselage and wing upper surfaces. Wheel discs were painted in Flight colours. K6147 illustrated has these fuselage and wing stripes in a mid-green.

Post-1938 aircraft were camouflaged in green and brown on all upper surfaces and wheel discs. 'ZK' of No 25 Squadron is non-standard in having silver undersurfaces, while most aircraft of this period were painted black on the port wing and white on the starboard.

'HB-G' of No 239 Squadron was camouflaged green and brown with sky undersurfaces. Roundels appeared under the wings. Codes were in grey, serials in black. In all aircraft of the three periods the nose section of the cowling was in bronze.



Wheelspin

BY BERT LAMKIN

Random round-up of racing tips

I HAVE been taking a closer look at the miniature car racing scene, and it is amazing the variety now appearing on the model-shop shelves.

Practically every car that has been seen on full-size circuits is now available in model form. With a little ingenuity, and some plastic cement, one can even produce the ones that haven't competed. To quote that very hackneyed expression: 'we have never had it so good'.

The constant state of change in the prototype world will certainly keep you busy if you want your models to be right up to-date. Incidentally, the new 1966 International regulations mean that touring cars will only need to retain their original external shape, so this should give some scope for really hybrid specials. Perhaps the stage has almost now been reached when events on the model circuits need labelling in years, so

that the right formula cars are used! For example, the latest single-seaters from Airfix are 2½ litre Formula 1 contenders of the late 1950s.

Pursuing this idea, the Vanwall and Maserati should have their motors moved forward. But maybe this is being too academic, and all you need do is to call it Formule Libre regardless.

Incidentally, both of these latest releases can be improved with some paint and a brush, using flat black for the interior of the cockpits. The Vanwall driver can be modified to look forward rather than at his feet, and the base of the Maserati conductor can also be trimmed to give a more realistic attitude.

The National Model Show at the Horticultural Hall gave visitors a chance to compare the various approaches to miniature racing, from the stark speed track to the fully landscaped road circuit. It is very much a question of available space, of course, and I think the small twisty layout with sections rather close to each other does need landscaping to avoid that look of sameness. If you are lucky enough

An Airfix Vanwall and Maserati line up on the hardboard-based portable startline unit, described in Wheelspin last August.

to have 30 foot straights with a lap distance of 100 feet plus, then the actual distance to negotiate would possibly make trees a nuisance. It is all a matter of personal choice and that is essential in any hobby.

With the advent of commercial tracks, like the one recently opened at Gamages in London, you will be able to test the full potential of your cars. The Airfix track at Gamages is only the beginning; in due course, I expect a number of these circuits to be available. One gets the impression that in America at least half the enthusiasts are racing their cars on commercial tracks. But I rather fancy in this country we are more insular and prefer to have our own layout—however small—or form a club with friends.

If you do decide to try one of these larger outfits with your own car, a modification to the standard Airfix guide pins is worth considering. It is made from a piece of nylon curtain rail as shown in sketch A, and is fitted over the two guide pins. This will give you more tolerance on the curves, as normally the front pin tends to bend backwards when rounding a corner at speed.

While on the subject of bigger circuits, one could consider using the new Airfix Corvette as a potent vehicle. Being 1:25 scale, it would allow a very beefy motor to be installed, with all the aids to rapid

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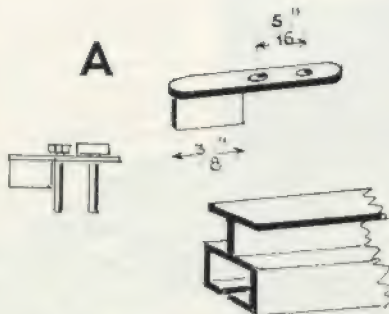
motoring. It would be somewhat more expensive than your normal cars, although if you are a keen club member, and a class for a larger scale is included in the activities, the Corvette should give a good account of itself. Possibly a later edition of *Wheelspin* will be able to give the practical facts.

Reverting to the standard Airfix track, have you thought of producing some very non-standard curves in the layout? On full-size circuits bends are very seldom symmetrical; in fact, at Brands Hatch for example, the Clearways curve has about six different radii. So, if you feel like the effort, a fine hacksaw and polystyrene cement will enable you to produce some very authentic bends and twists, using pieces of standard and outer Airfix curves.

Do not forget to insert the contact tags into each new end before cementing together. Sketch B gives the idea.

This cutting and joining can be used to create a smoother transition in gradients if the track is being mounted on a baseboard. The cracks between pieces can be filled with Polyfilla. Use enough to stand proud of the surface, and rub down with glasspaper when dry. Attention to the surface, especially on bends, will improve the cars' performance.

The photos this month of the start-line unit (described in the August issue) shows an easy method of

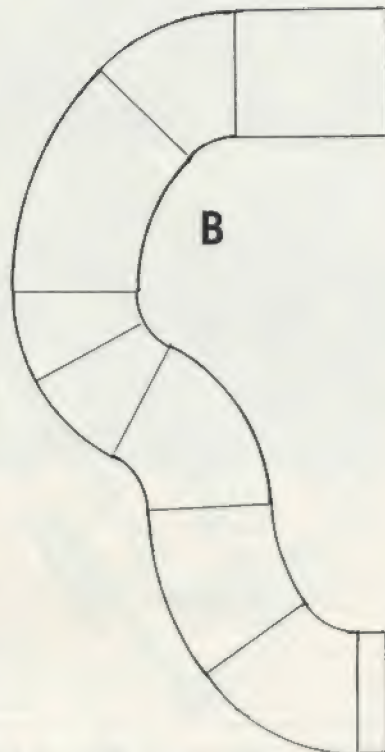


making close mesh fences. A nylon net shopping bag from Woolworths is cut into strips—the height of the desired fence—with a razor blade and painted silver. Matchsticks or $\frac{1}{4}$ inch square balsa provide the posts, which are fitted into holes drilled in the baseboard and painted white. Stretch thread or cotton along the posts to form the carrier wire, then glue the strips of net to the posts, keeping it taut and level as you proceed.

In full size, chain link fencing—which we are representing—is seldom higher than six feet; that is, $2\frac{1}{4}$ inches in our scale.

Another idea used on this unit was to produce lines on the road surface. I painted Sellotape the required colour, then cut it into strips. It was then pressed into place on the track. Of course, you can buy Sellotape in various colours—I just happened to have the clear type on hand.

You can also use this for the goggle strap, etc, on the drivers, and

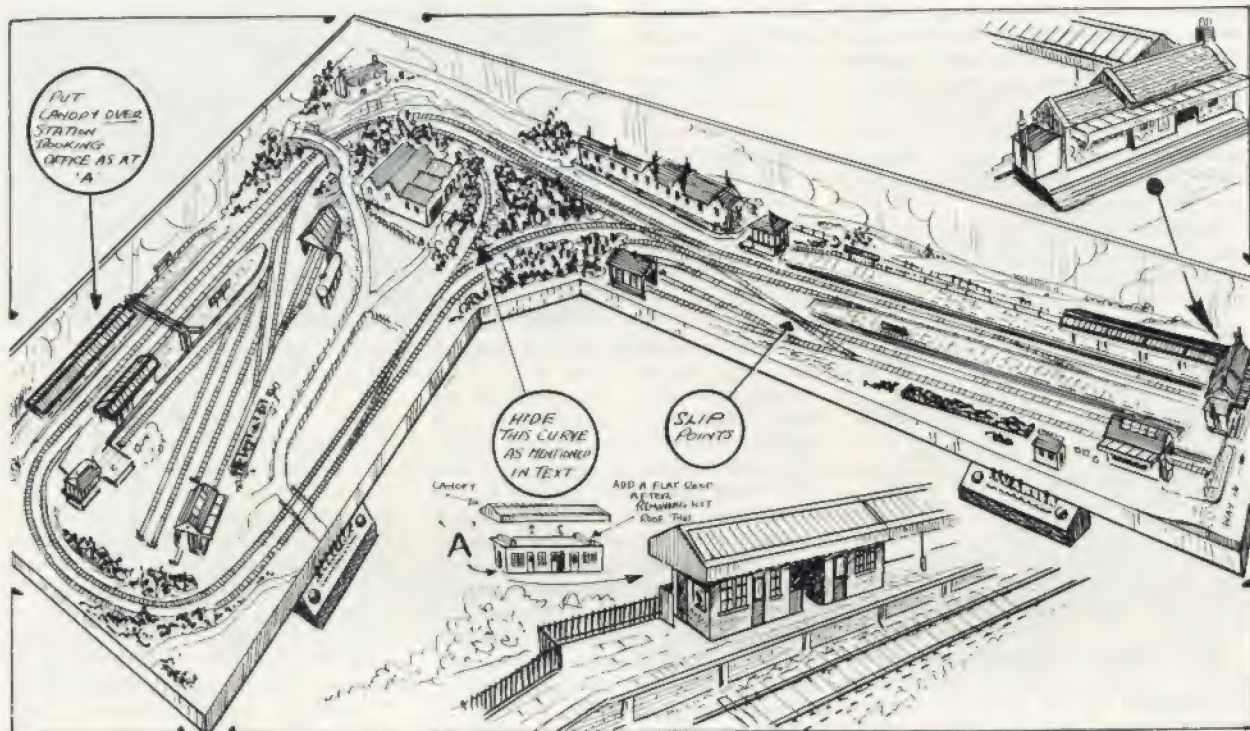


for retention strips on the headlight 'glasses'. The scrutineers usually look closely for these on the prototypes.

With Formula 1 being increased to 3 litres in 1966, we shall have to think about making our own cars more of a handful!

Drawings above are keyed and referred to in the text. Picture below again shows the portable startline unit, from which the buildings are easily removable. They can also be employed to 'hide' items like the power unit.





Main sketch shows the popular type of layout with a combined L-shaped and circular formation.

LAYOUT REALISM

—by Alex Bowie

One man's meat

FREQUENTLY I draw a layout of a kind which I am not keen on personally, and the reason for this is quite simple. Everybody has his own tastes, and mine are not necessarily the same as the bloke's next door.

The layout sketched this month is very popular indeed, even though not my personal cup of tea. But instead of shouting 'boo' from the housetops, I've taken the trouble to find out *why* it is popular, and it appears that many people like it because it gives them some of the advantages of three distinct types of circuit in one, i.e. the out and home, the circular, and the end to end.

But a fourth advantage is more important, because it underlines something that some people just will not see, and that is that circumstances usually determine the shape of a layout. Look at the sketch and you will see that it is ideal for the ambitious chap who has a part of a room at his disposal, for it gives him just about as much railway as it is possible to cram along two walls.

It follows that even if this type of layout is not an ideal shape,

it's the *right* one for a lot of people, and neither I, nor 'Clever Claude the Constant Critic' will be able to alter that fact. Normally—and this applies to bods like myself—the possession of only two sides of a room would mean an L-shaped point to point layout. But some people do not like the rather staid sort of operation necessary with L-shapes, which are usually branch layouts. They prefer plenty of fireworks, with engines that look as if they are in a hurry to get somewhere. And taking a non-partisan view I'd say that, where space is short, an oval is almost essential for fast work. But small ovals can create problems.

A VERSATILE DESIGN

A comparatively small circle has to be heavily disguised so that the oval formation is not too conspicuous. But don't let that worry you, for as I've often pointed out, railways are impossible to reproduce accurately, and the art of modelling layouts is to make the impossible look believable. Thus, if you follow the sketch closely, you will see that the now well-known subterfuges like placing trees and buildings in front of sharp curves will disguise their sharpness.

Note particularly that, although there is this oval, one short section of it is single track only. There is no reason why it shouldn't be double, but the layout as sketched gives two advantages: (a) the change from double track to single adds a little extra interest to the operation; and (b) the layout can *also* be used as an out and home for operators who prefer a quieter life, with the short single line being merely used to complete a test track. As sketched, the short section is very heavily disguised with trees, which could almost form an archway over the track, if you'd like a branch line atmosphere.

I must point out that I draw the circuits as they would be seen by a pigeon rather than by a pedestrian. This allows you

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to see the whole works, but is not the most flattering view. I point this out because when one views from about eye level, the sharp curves and other artificialities are less apparent, and in fact are the least of the problems involved.

PROPRIETARY KNOW-HOW

Sharp curves, though they have their drawbacks, are almost essential on any breadboard layout, because in order to be practical the board cannot be very much over four feet wide if positioned against the wall. In practice, the *main* difficulties are not with the appearance of the curves but more with the appearance of the rolling stock. A sharp radius needs either proprietary stock, or stock which borrows many ideas from proprietary products. Thus there will be a wider gap between rolling stock, locos and tenders than would be expected with true scale stock. Not only that, clearances between moving parts and between wheels and running boards, etc, have to be more generous where curves are sharper.

The proprietary user, and that means most people, has had most of his problems already solved for him. The few who prefer 'scale' but still have to use compact layouts such as this will be well advised to borrow a few ideas from proprietary equipment, even if they prefer not to borrow all.

This may possibly sound heretical, but a heretic in full working order is at least as good a man as the idealist whose theories do not fit the space at his disposal. Or alternatively, an expert who has plenty of space is not necessarily an expert on other people's modelling problems. All this pre-supposes that the modeller is, bless his heart, an average chap who likes to model the normal things around him. In other words, express or large engines and full length main line coaches and what not.

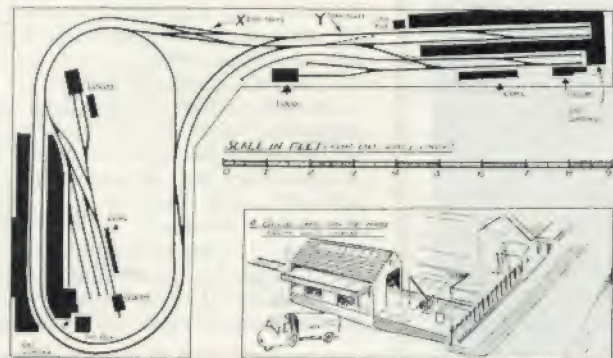
But, if he is one of those chaps only interested in small ancient locos pulling short decrepit coaches, tight curves such as on this layout present fewer problems, and scale clearances become feasible.

THE RIGHT STOCK FOR THE JOB

A tiny tank with short wheelbase and small wheels will go round far sharper curves than a longer loco with bigger wheels and longer wheelbase. In fact, by devices such as allowing a little extra side play on some axles, a scratch or kit-built loco can be just as adaptable as any proprietary job, and hardly needs to be faked up.

Thus, this month's layout, although mainly intended for proprietary users, is not barred to true scale fans, provided that they realise that they will have to choose the locos and stock to fit the railway.

The layout plan. Note that the scissors and crossover X and Y are alternatives, but a de luxe layout could use both.



October, 1965

NEWS FROM IPMS

AS reported in the August issue, the London Branch of the International Plastic Modellers' Society has found a new venue for its monthly meetings, and two have now been held at St Mark's Church Hall, Balderton Street, W1. The next London meeting will be on Friday, October 1, at 7.30 pm approximately, followed by another on Friday, October 29.

Meetings and exhibitions have also been held in various other parts of the country. An exhibition run by the North East branch in Newcastle from August 17-24 was a great success, and several new members were gained. More events of this type are planned for the future, and anyone interested in these or the more informal gatherings should contact the Area Secretary, P. Jary, 'Halcyon', 63 Whitburn Road, Cleaton Village, Nr Sunderland, Co Durham.

Hull Branch has also been holding meetings, including a competition on August 8 which was again very successful. Another competition is being held on October 3 and full details can be obtained from P. Reeder, 4 Spring Cottages, Middleton Street, Spring Bank, Hull. One meeting has now been held by both the newly constituted Birmingham and Kettering branches, each quite well attended. The next Birmingham meeting will be on Friday, October 1, at the YMCA at the bottom of Snow Hill, Birmingham (behind Snow Hill station) and the next Kettering meeting on Sunday, September 26, at the Keystone Boys Club, 97 Rockingham Road, Kettering. Further details of these meetings can be obtained from the respective area secretaries, R. Adams, 64 Water Orton Road, Castle Bromwich, Birmingham, or G. Shutes, 20 Wallis Road, Kettering, Northants.—R.R.W.

We have many letters from readers requesting back copies of AIRFIX MAGAZINE containing conversion articles. Back copies of many issues are still available for the benefit of readers who may have missed or mislaid earlier editions. For example, here are some of the practical articles which have appeared in recent issues.

1964: August—Converting Airfix Hunter and HMS *Hotspur* kits. **September**—Motorising the Airfix Saddle Tank. **October**—Converting the Airfix Ju 88. **November**—Conversions with the Airfix Centurion. **December**—Carrier conversions and Catalina Profile. **1965: April**—Making Japanese Infantry equipment and converting the Airfix Boston IV into an A-20G. **May**—Converting the Airfix Sherman into a Priest. **June**—Building a Hector from the Airfix Hawker Hart. **July**—Motorising the Airfix City of Truro. **September**—Adaptations of the Airfix Jeep.

Would readers please note that the following is a revised list of those issues that are now out of print: all 1960 editions; January, February, May and June, 1961; September, October and November, 1963; February, March, April, May, June and July, 1964; January, February, March and August, 1965.

Back copies cost 1s 6d each (including postage) for all issues up to and including August, 1963. From September, 1963, onwards, the cost is 2s per issue, post paid. Please address all requests for back copies, together with your remittance, to our circulation department at SURRIDGE, DAWSON (PRODUCTIONS) LTD, 136/142 NEW KENT ROAD, LONDON SE1.

ARE YOU A KIT CONVERTER?

Winner of the Ilford Elmo 8CZ ciné camera was 18-year-old R. Godfrey, of Colchester, with this fine picture of an Airfix Centurion, aptly titled 'Intrusion'.

**FIRST
PRIZE**

BEST OF A BUMPER ENTRY

**THE AIRFIX MAGAZINE MODEL
PHOTOGRAPHIC COMPETITION
ATTRACTED AN ENTRY OF NEARLY 650
PHOTOGRAPHS: HERE ARE FULL
DETAILS OF THE PRIZE-WINNERS**

SECOND PRIZE

This picture of an Airfix Evening Star, taken by G. C. Thomas, of Levenshulme, wins him the Ilford Rangefinder 35 mm camera kit.



CONSOLATION

THE following 25 readers won consolation prizes of a free Airfix plastic construction kit of their choice. Their prizes will be dispatched as soon as possible.

A. Beaumont, 'Waynefleet', South Wootton, King's Lynn, Norfolk. L. A. Bouts, 1 Foley Av, Tettenhall Wood, Compton, Nr Wolverhampton. A. H. Butler, 11 Woodley Rd, Orpington, Kent. J. M. Carr, 13 Standings Rise, Hillcrest, Whitehaven. Ivan Cocker, 'Lyndhurst', 4 Oakwood Gdns, Orpington, Kent. M. C. Constant, 145 Glenhurst Av, Bexley, Kent. Flt Lt P. G. de Bourcier, 131 Newton Wood Rd, Ashted, Surrey. Scott Dobson, 45 Wingrove Rd, Newcastle upon Tyne. K. Edwards, 12 Bathurst Rd, Staplehurst, Kent. Bryan Foster, Molkomsbacken 45, Farsta, Sweden. I. Godsland, 29 Winchester Rd, Northwood, Middx. Michael P. Grealy,



RESPONSE to the AIRFIX magazine Model Photographic Competition—organised with the kind co-operation of Airfix Products Ltd and Ilford Limited—was most encouraging. The three judges—H. D. J. Cole, FRPS, AIBP, who is the manager of Ilford Limited's Photographic Advertising Unit at Cricklewood and who is also President of the Royal Photographic Society; the Chief Designer for Airfix Products Ltd; and Darryl Reach, Editor of AIRFIX magazine—had a difficult task to pick the winners from the close on 650 prints submitted.

General standard of the entry was extremely high, and several entries were submitted from countries abroad, including South Africa, Eire, Singapore, Sweden and the USA. Unfortunately, some entries had to be disqualified for not complying with the conditions of entry, or arrived after the closing date of September 6. The main fault that resulted in disqualification included the failure, on the part of many entrants, to include—together with their official entry form—a competition coupon cut from AIRFIX magazine, or an Airfix kit box top/header, or an Ilford film carton. (In contrast there were several entrants who submitted all three items, or several of one!) In addition, there were some entries that comprised prints that were smaller than the permitted minimum size of $3\frac{1}{2}$ inches square.

Quite a few entrants sent in a large number of prints and it was particularly noteworthy that a number of younger entrants had tried very hard. Many of their set-pieces showed a lot of original thought, but unfortunately their photographic technique in many cases let them down. Another important feature was that many pictures were far too confused and 'cluttered'. But a lot of very good quality work was submitted, showing a remarkably high standard of both model making and photography, and we would like to thank all entrants for their support.

First prize of an Ilford Elmo 8CZ ciné camera goes to 18-year-old R. Godfrey, of 57 North Station Road, Colchester, Essex, for his picture (which he entitled 'Intrusion') of an Airfix Centurion in action. Second place went to G. C. Thomas, of 9 Fairview Avenue, Levenshulme, Manchester, 19, for his picture of the Airfix *Evening Star*, which earns him the Ilford Rangefinder 35 mm camera kit. A picture of an Airfix Fokker Friendship, taken by Derek Sanderson, 25 Thornbridge Drive, Frecheville, Sheffield, 12, took third place to win the Ilford Sportsman 125 35 mm camera.

THIRD PRIZE

Derek Sanderson, of Frecheville, entered this picture of an Airfix Fokker Friendship, to win the Ilford Sportsman 125 35 mm camera.

PRIZE-WINNERS

'Spandau', Ormesby Rd, Caister-on-Sea, Norfolk. Richard Handley, 4 Mavis Grove, Cookridge, Leeds 16, Yorks. Norman Hill, 73 The Weind, Worle, Weston-super-Mare, Somerset. D. McLeod, 70a Berrow Rd, Burnham-on-Sea, Somerset. M. J. Merrick, 346 Wylde Green Rd, Sutton Coldfield, Warwks. Paul Millard, 32 Rosehill Rd, Burnley, Lancs. L. Novak, PO Box 1424, Port Elizabeth, South Africa. Keith Palmer, 4 London Rd, Halstead, Sevenoaks, Kent. M. G. Pannett, 9 Gloucester Rd, Twickenham, Middx. S. E. Stratton, 32 Newton Rd, Ramsey, Huntingdon. Richard Thompson, 8 Luke St, Potchefstroom, Transvaal, South Africa. J. Newton Townsley, 390 29th Avenue, San Francisco, California, USA. R. Webb, 8 Rangoon House, Burma Rd. London, N16. D. L. Whiting, 33 Highlands Av, Spinney Hill, Northampton.





One of the seven Fw 190D-11 prototypes, W Nr 170924, which first flew on August 31, 1944. Owing to the 'breakdown', no series production was possible.

APPEARING in October—and due to be reviewed in our next issue—is the latest of the Harleyford books, *The Focke Wulf 190: A Famous German Fighter*, by H. J. Nowarra. Publication time is apt, for in recent weeks thought and print has been lavished on the Luftwaffe. And, for the plastic modeller, Monogram's Fw 190—which can be completed in a variety of ways, and which is to the very desirable 1:48 scale—has been released. The Airfix long-nosed Fw 190D, and other kits, make it possible to complete a wide range of 190s carrying bombs, drop tanks, various armament, a variety of noses and propellers, a guided missile and even a torpedo. Since many of the modifications are straight-forward, the 190 is in many ways a modeller's delight.

One of the surprising features of this aeroplane, when it appeared, was that it had a radial engine, neglected on fighters by the British and adopted in the late 1930s with hesitation elsewhere when the advantages of the in-line power plant were apparent. Due to the drag of the bulky engine, restricted forward view, and weight complications, radial engines fell into some disfavour in the early stages of the war, despite their power and the absence of highly vulnerable and elaborate cooling systems. In Germany, the demand for the successful DB 601 in bombers and fighters led to the RLM seeking an alternative power plant for the planned successor to the Bf 109, which the Focke-Wulf company began to design in 1937.

Two forms were projected, one with the in-line DB 601, and the other around the BMW 139 radial. The latter was selected and the prototype, FO + LY, emerged in the spring of 1939. Its engine was closely cowled and fan-cooled. A wide undercarriage track made for easy ground handling, and the engine cowling was planned for easy maintenance. But the engine was close to the cockpit, which became quickly overheated, and carbon monoxide fumes streamed back into the enclosure. This, of course, was frequently a case in aircraft of the period. In spite of these misfortunes, the fighter performed extremely well, and had a top speed of 370 mph in level flight. A second

machine appeared with a huge spinner, ducted and fitted to lead the airflow around it and directly over the cowling. This led to unacceptable complications. The second aircraft was armed with two machine guns fitted on top of the forward fuselage.

Prior to flight trials of the Fw 190, the RLM had decided to abandon development work on the BMW 139 in favour of the 1,700 hp BMW 801. Work on the following two 190s was halted while it was decided how to marry the new engine to the existing design. Greater weight caused the cockpit to be moved further aft, fortuitously curing the heat and gas troubles. One

of the two new prototypes had an increased wingspan, which became a standard feature of later aircraft, and each had four machine guns, two above the fuselage and two in the wing roots. A pre-production batch of Fw 190 AOs was ordered before the prototypes flew, and the first of them appeared in October, 1940, seven of the batch having short-span wings.

A hundred Fw 190 A1s, fitted with 1,600 hp BMW 801C engines, were ordered, similar to the pre-production aircraft, with four MG 17s and long-span wings. It was this, and the Fw 190 A2, which had two 20 mm MG FF cannon in the wing roots, that first entered operational service with JG 26 in July, 1941. Already the Fw 190 had come face-to-face with the Royal Air

Force, but it was the earlier trial machines that had been mistaken for beefed-up Hawk 75s acquired from the French. To the intelligence authorities the Fw 190 was well known, however, and the pilots returning from sweeps were merely bringing evidence that this fast and highly manoeuvrable fighter was in service.

Its performance was improved further by the fitting of the BMW 801D in the Fw 190 A3, of which large numbers were built for service over Northern Europe. In this variant, the 20 mm MG151 wing cannon were moved outboard. JG 2 was next equipped, and the two large Geschwader were soon operating the three versions against the RAF's Spitfire Vs and

PROFILE

The Fw 190: a fighter of renown

Hurricanes, which they outpaced and often outperformed, in spite of the superior training and high morale of the Royal Air Force. Indeed, the wonder was that the British losses were not higher. Fast as it was, the Fw 190 was unable to catch the British Mosquitoes which came into service at the same time as the Fw 190. The answer to the Fw 190 in the fighter field lay in the Spitfire IX, which became available only in small numbers in the summer of 1942, and later the Typhoon, which at medium altitudes was more than its equal in level flight. Although the first Typhoon sorties were flown on June 30, 1942, it was over Dieppe on August 19 that the Fw 190 came face-to-face with the Typhoon, neither side having any claims or losses.

At the end of March, 1942, Messerschmitt Bf 109 fighter bombers commenced low-level attacks on coastal targets, this role being taken over in July by Fw 190s operating in pairs, fours or eights. It was fortuitous that the Typhoon was at long last ready for operations, for when these were scrambled in time—which was infrequently—they were able to deal with the raiders. Careful timing, including rapid withdrawal, made the 190 raids difficult to combat, and in the course of them the aircraft showed itself to be excellent for the fighter-bomber role. The most spectacular raid of the series came on January 20, 1943, when 28 escorted 190s ventured to London losing nine of their total strength. These raids continued until June, 1943.

Prompted by the machine's success, Focke-Wulf developed with alacrity the range of variants. The A4, with BMW 801D-2 and a fuel injection system to boost speed, frequently served in its /U-8 form with a 1,100 lb bomb beneath the fuselage, a 66-gallon drop tank beneath each wing and only two cannon. A few of these were in use by the end of 1942, but their numbers increased in 1943 and they saw service in Italy and on the Russian Front. It was at this time that SKG 10 formed strictly as a fighter-bomber unit for anti-shipping raids off France. The mauling that the Luftwaffe was being given at night over Britain prompted the High Command to apply the 190s of SKG 10 to night attacks from April 16, principally on the London area. With an insignificant load, and hopelessly handicapped by poor navigation, the 190s were merely a nuisance



Top: The first prototype Fw 190A-5/U14, W Nr 871, shown before the start of its test flying, near Gdynia. **Above:** W Nr 813, shown here, was really an Fw 190-5/R1, but operated as an A-5/U12. It became the prototype of the later A-7/R1 series.

to Fighter Command as they strayed to the borders of Oxfordshire and Cambridgeshire, but usually milled around over the Southern Counties in search of the capital.

The most amazing event was the landing by a group of the fighters, when lost, at West Malling. Wearing the usual two-tone splinter camouflage on their wings (most 190s had this) they had a mottled grey upper area to their fuselages. The sides and undersurfaces were matt black, and they wore this in a distemper-like finish. Some of the machines of SKG 10 oddly wore factory codes like Fw 190 A5, W Nr 2596, CL + QH of I/SKG 10. Fw 190 A3, A4, A5 and A6 were all operated on the night attacks, which did not cease until early 1944.

The 190 A5 appeared in 1943. Its engine was on a stronger

Continued on next page

A captured Fw 190G-3, which was tested by the USAF. It was given US markings and later was repainted in German colours, but the swastika is too large.





One of the first Fw 190As, being prepared in Bremen for a test flight before being handed over to JG 26.

PROFILE —Continued

mounting, placing it six inches further forward. This was featured by the subsequent A series, the A6 with 4 x MG 151 and 2 x MG 17 guns, the A7 with two MG 131 on the fuselage, A8 with MG 131s and an extra 25 gallons of fuel, and the A9 with a BMW 801F. Virtually suitable for any of the 190 As came a series of modification sets, and when incorporating these the aircraft's designation was temporarily amended, eg Fw 190 A8/R-3. R1 constituted a pair of MG 131/30 in each underwing blister. R2 signified 2 x MK 108 similarly placed. R3 aircraft had two wing-mounted MK 103 guns, and the R6 unit comprised 2 x 21 cm WG 21 mortars placed under the wings. U1 was a dual-control version, U2 a night-fighter, U11 a ground support fighter-bomber, U14 a torpedo fighter and U16 had 2 x 30 mm MK 108 cannon in place of other wing guns. The Fw 190G was the 190 A5/U-3 built in this state on the production lines, and the 190F had a clear vision canopy, extra armour around the power plant and existed as a bad-weather fighter and fighter-bomber. Its F9 variant was fitted with 12 R4M under-wing missiles. All of these versions may easily be produced from any kit of the 190A.

Fearing that major modifications to the Fw 190 would interrupt production at a time of desperate need, when the 190s were fighting daily the American onslaught on Germany, the RLM decided that, however good any future 190 variant might be, production must be concentrated on the BMW 801 versions. Thus, although advantages were apparent in the Fw 190 B reworked to have a DB 603, increased span, four-bladed

propeller and belly supercharger, development was a side-line to main production of the A series. Six prototypes were constructed and three pre-production aircraft, but these were cast aside when even more spectacular results were achieved with the 190 V17 and 18 fitted with Jumo 213 A1 engines. This version was ordered into production, after further trials, as the Fw 190 D0 and D1 series which came into use late in 1943. Models of these and the superceding Ta 152 variants can be made, with some care, from the Airfix 190 D.

Basically the Fw 190 D had the wing of the A version, tail unit, longer rear fuselage and changed fin chord, and the Jumo 213 A1 in a long annular cowl. It had a top speed of 432 mph. In Britain decisions were meanwhile being similarly taken not to interrupt production without very good cause. Thus the Supermarine Victor and the Fw 190 D were delayed, the latter to a lesser degree. Added to this, the intensity of Allied attacks hindered production, and plans to replace the 190 A series with the D by October, 1944, had to be abandoned.

By this time, the D9 was operational with JG 3, with a top speed of about 440 mph at 37,000 feet. An MK 108 fired through the spinner of the D12. The D13 with an MK 103 was fitted with a Jumo 213F which called for slight cowl modifications.

Final chapter in the story came when the designer of the famous series, Kurt Tank, requested of the RLM that he might incorporate his initials in the designation of the design, and the Fw 190 D9 became the Ta 152 A. Production of the Ta 152 B with Jumo 213 E1, (GM 1 boost) commenced in August, 1944. In the 152 C series the wings were modified to carry much more fuel and a DB 603 was installed. With the extra boost of the MW 50 installation, sea level top speed was 359 mph and at 34,400 feet the speed reached 463 mph, an outstanding achievement. Fortunately for the Allies the factory producing these aircraft was overrun by the Russians and the Cottbus works commenced tooling up for production of the succeeding Ta 152 E and next the F reconnaissance fighters with Jumo 213s. Finally, came the 152H with long-span reinforced wings and a Jumo 213 E1. Armament was two MG 151s and an MK 108 cannon, but only a few were built when the fall of Germany brought production to a ragged end and the brilliant designer into Allied hands.

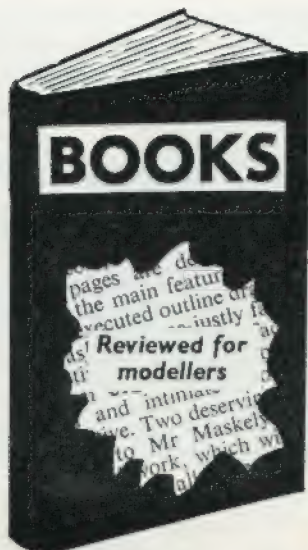
In the space available here justice can barely be done to a topic as vast as the Fw 190 story. Therefore we can but recommend you to follow up the subject in the new Harleyford book, lavishly illustrated by pictures—some of which are reproduced here—and by a wealth of drawings.

M. J. F. Bowyer

This Fw 190 30/U1, the original prototype of the Fw 190C, was stripped of its armament and used experimentally. It crashed at Lagenhagen on August 13, 1944.



NEW BOOKS



Stateside story

HISTORICAL AVIATION ALBUM, VOL. 1, by Paul Matt. Sole distributors outside the American Continent: W. E. Hersant Ltd, 228 Archway Road, Highgate, London N6. Price 23s 6d.

THIS book contains three-view plans and historical details of ten United States-produced aircraft. Ranging from the Curtiss F Boat to the P-80 Shooting Star, they provide some very interesting detail and background information on aircraft which are otherwise little known, but nevertheless of historical value.

Although the book is of value to the model maker, there are now few of the present-day fraternity who like to depart from 1:48 or 1:72 scale. The plans in the book are printed to fit the page size, and are therefore nowhere near either of these scales. Reproductions of the plans can be obtained, but these again are mostly $\frac{1}{2}$ inch to the foot.

Searching out sheds

THE BRITISH LOCOMOTIVE SHED DIRECTORY, compiled by Aidan L. F. Fuller, FCA. Published by Ian Allan, Terminal House, Shepperton, Middx. Price 3s 6d.

ENTRANCES to locomotive sheds and works are usually tucked away in the most obscure parts of a town, but with the aid of this directory—now in its 13th edition—visitors can save hours of searching. Comprehensive directions are given from the nearest passenger station—or bus route where the station has been closed!—and the approximate walking time is stated to the nearest five minutes. A useful section of this 96-page book gives itineraries for visits to the larger cities. Perhaps most important is the list of addresses to which application should be made for visits—prior permission must always be sought before trying to enter BR sheds and works.

American biplanes

CLASSIC MILITARY BIPLANES, by Peter M. Bowers. Published by The Sports Car Press. Available in the UK through Graham K. Scott, 2 The Broadway, Friern Barnet Road, London N11. Price 12s 6d.

THIS book is an American publication which details a large number of aircraft under manufacturer's headings. All the types discussed are of American origin, and it is interesting to

read of some of the little-known aircraft on which other books give the barest details.

All categories of biplanes are illustrated, including flying boats, bombers, fighters, trainers, observation and utility aircraft. The pictures are rare though not exciting. They will be of use to model makers, for they show a great many unit and squadron markings. A useful book to have if your interests are in pre-war American aircraft.

First-hand account

FOKKER: THE CREATIVE YEARS, by A. R. Weyl. Published by Putnam & Co Ltd, 42 Great Russell Street, London WC1. Price 84s.

A GREAT deal has been written about Anthony Fokker and his influence on aviation before, during and immediately after the First World War. Much of this has been based on theory, and it is only now that we can read what purports to be an accurate account of his life and work.

After a period as Permanent Assistant to the Professor of Aeronautical Engineering at the Technical College, Berlin, the author worked in the German Defence Ministry until his arrest by the Nazis in 1933. He died in 1959, and the book has been edited by J. M. Bruce. Weyl had close connections with Fokker in his work, and the account of the development of Fokker aircraft can therefore be relied upon for its accuracy. Apart from detailing all the Fokker aircraft built, the book has three-view drawings and many photographs of the various designs. It gives full credit to Reinhold Platz, the man who designed the best of the Fokker aircraft during the First World War and also some of the more famous transport aircraft immediately after.

Low-down on diesels

ABC BRITISH RAILWAYS DIESEL LOCOMOTIVES. Published by Ian Allan, Terminal House, Shepperton, Middx. Price 3s.

THE latest edition of Ian Allan's ABC of BR Diesel Locomotives—published on July 1, 1965—lists all locomotives on order at the time of going to press. To help identify it on the bookstalls, the cover photograph of a Southern Region Type 3 is topped by a red and yellow band. The size of BR's diesel locomotive fleet can be gauged by the fact that 64 pages are required to list all the numbers, give brief details of each class and illustrate 48 examples.

Seaplane survey

THE SEAPLANES, by Henry R. Palmer Jr. Published by Morgan Aviation Books. Sole distributors outside the American Continent: W. E. Hersant Ltd, 228 Archway Road, Highgate, London N6. Price 22s 6d.

WE liked this book, if only for its attempt to say something about one of the most romantic periods in the development of aviation history. The flying boats of pre-war fame are now almost non-existent, and there are few remaining in service anywhere in the world. Times change, and we think that now is an appropriate moment to reflect and recall the major steps forward given to aviation history by this type of aircraft.

This book does just this. Admittedly it seems biased towards the American contributions, but nevertheless gives a reasonably accurate account of the first aircraft to use the sea as a landing ground, the flying boats of the First World War and the use made by civil aviation of their post-war developments. The photographs are as good as the text, and the book can be recommended to the student of aviation history as being of top-rate value.



D6826, one of 294 English Electric Type 3s in service on Eastern, North Eastern and Western Regions.

IN the August issue I surveyed BR's last remaining steam locomotives. A fitting conclusion to this present Railway Review series might be to look at BR's modern motive power, and survey the multiplicity of diesel locomotives that are now common throughout most of the country.

There are now nearly 5,000 diesel locos in service or on order for BR, and these are made up of over 50 different classes. These 50 classes fall into six different basic types. At one end of the scale are low-g geared shunting locomotives designed for local working mainly in goods and marshalling yards. Then follow main-line passenger or mixed traffic locomotives of Types 1, 2, 3, 4 and 5, depending on the power of the locomotive.

Shunters

The main type of shunting loco is the BR 350 hp 0-6-0 design, first introduced in 1953. These are diesel electric locos, that is the power of the 350 hp diesel engine is transmitted to the six coupled wheels through electric motors. Although made to a basic design, various manufacturers have contributed to their building. For instance, diesel engines have been supplied by English Electric, Crossley and Blackstone, while traction motors have been supplied by English Electric, Crompton Parkinson, GEC and BTH. There are 1,187 of these locos in service on all regions of BR.

The present 350 hp shunter owes much to the development of pre-war designs pioneered mainly by the LMS. There are still 136 of these in service and four ex-LNER locos built in 1944. The few ex-GWR and SR designs have, however, all been withdrawn. A further



32, built by BR in the late 1940s, bring the total number of 350 hp diesel shunters in service to 1,359.

Another type of 0-6-0 shunter to be found on all regions employs a 204 hp Gardner engine with mechanical drive through a five-speed gearbox to the six coupled wheels. There are 465 of this type in service, built by BR (228), Drewry (141), Barclay (10), Hudswell Clarke (20), and Hunslet (66).

To conclude BR's fleet of diesel shunters there are 14 Ruston and Hornsby 275 hp diesel electric 0-6-0s, allocated to the SR and employed at Southampton docks, and 159 0-4-0s of various types, built by Barclay (39),

North British (94), Yorkshire Engine Co (20), Hunslet (3), Ruston and Hornsby (2), and Brush (1). Two-thirds of these 0-4-0s are allocated to the Scottish region and the rest can be found on the ER, NER and LMR.

Type 1

There are 346 Type 1s in service and, with one exception, these are all diesel electrics of the Bo-Bo type. The exception is the BR 0-6-0 650 hp diesel hydraulic design which is still being built at Swindon. There are 47 in service, all allocated to the WR, with another nine on order. With the exception of 117 Clayton-built centre-cab locomotives, in service on the Scottish region, NER and ER, the remainder are all of the bonnet or 'hood' type with a cab at one end. There are 128 English Electrics of 1,000 hp, allocated to LMR, ER and the Scottish Region, and 44 BTH and 10 North British 800 hp locos allocated to the ER.

Type 2

The 897 Type 2s in service include some of BR's most successful designs. Foremost are the Derby-built Bo-Bos, of which 389 have been delivered so far and another 89 are on order. Fifty-four of this later batch are to be built by Beyer Peacock. They are powered by Sulzer engines of either 1,160 or 1,250 hp, and they are allocated to all regions except WR.

The next largest class of Type 2 is the Brush A1A-A1A, of which there are 246 in service, all allocated to the ER. The majority are fitted with 1,365 hp engines, but the first 20 have 1,250 hp engines and one has a 1,470 hp engine. The Birmingham RC and W Co have

AIRFIX magazine

built 116 Type 2s, the first 47 of which have 1,160 hp Sulzer engines, and the remainder have similar engines rated at 1,250 hp. These are working on the Scottish Region, NER and LMR.

Perhaps one of the oddest classes of BR diesels is the 20-strong Co-Bos, built by Metropolitan Vickers. These are rated at 1,200 hp, and are all based at Barrow on the LMR. The smallest class of Type 2 is the English Electric Bo-Bo, with 1,100 hp Napier Deltic engines, ten of which are based at Finsbury Park on the ER. Finally, there are 116 locos built by North British and divided equally between the Scottish and WRs, the Sc R's being diesel electrics and the WR's diesel hydraulics.

Type 3

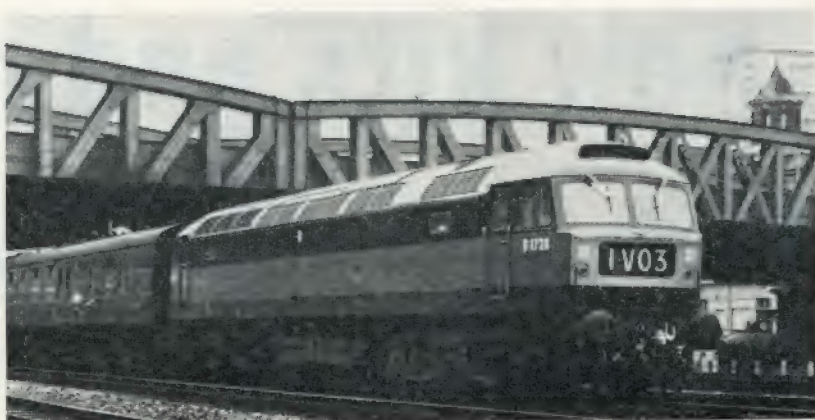
By far the largest class of Type 3 is the English Electric 1,750 hp diesel electric Co-Co, of which 294 have been delivered to the ER, NER and WR and another 15 are on order. The Southern Region have the complete stock of 97 Birmingham RC and W Co 1,550 hp diesel electrics, and these are operating very successfully. Another sole user of one class is the WR, who operate the complete stock of 101 Beyer Peacock Hymek diesel hydraulics rated at 1,700 hp. Also included as Type 3s are the 17 Brush A1A-A1As, fitted with 1,600 hp engines, and all allocated to the ER. Last, but not least, mention must be made of the one remaining LMS-designed and built 1,600 hp diesel electric loco which caused such a stir as the forerunner of things to come when it was introduced in 1947. The total number of Type 3s in service is 510, with 15 on order.

Type 4

The largest single class of main-line diesel loco looks like being the Brush Type 4 diesel electric, fitted with a Sulzer 2,750 hp engine. First introduced in 1962, there are now 377 in service—with another 115 on order—and delivery is proceeding apace. All but the SR have—or are due to take delivery of—these fine locos. English Electric introduced their 1Co-Co1 Type 4 with 2,000 hp engine in 1958, and there are now 200 allocated to all regions except SR and WR. Very similar in appearance are the 193 BR-built 1Co-Cols, fitted with 2,500 hp Sulzer engines, introduced in 1959. These are operating on the LMR, NER and WR stock.

All the other Type 4s are the Warship

A North British Type 2 diesel electric at Inverness on the Scottish Region.



Above: BR's largest class of main-line diesels is the Brush Type 4. D1738 heads an express passenger train on the Western Region. Below: One of the distinctive Swindon-built Warships, D802 Formidable operating on the Western Region.



and Western Class diesel hydraulics, operated by the WR. Odd men out in the Warship Class are the five A1A-A1As built by North British and rated at 2,000 hp. Otherwise the Warships are all of the B-B type. With the exception of the first three, rated at 2,000 hp, and one other rated at 2,400 hp, they are all fitted with 2,200 hp engines. Thirty-eight were built by BR at Swindon and 33 were built by North British. BR were responsible for building all 74 of the Western Class CC 2,700 hp diesel hydraulic locomotives.

All told, there are 920 Type 4s in service, with another 115 on order.

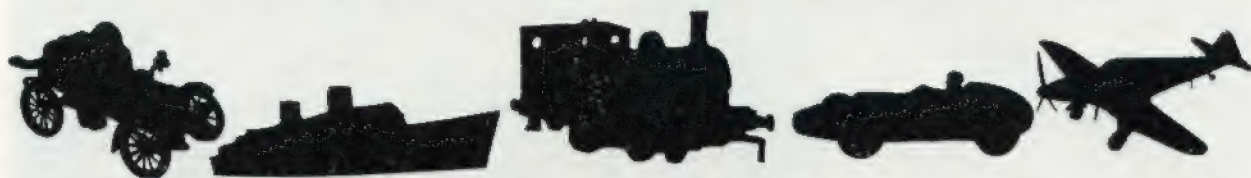
Type 5

The sole representative of this power class is the English Electric 'Deltic' Co-Co of 3,300 hp, at one time the most powerful single unit diesel electric loco in the world. There are 22 in service on the ER, NER and Scottish Region and they are responsible for the very fast schedules on the East Coast route to and from Scotland.

Space does not permit reference to all the varieties of diesel multiple units in service, or to the rising fleet of BR electric locomotives that are still being delivered.



New kits and models



1:32 SCALE SOLDIERS

WE are grateful to reader H. R. W. Morrison, of Ontario, Canada, for providing the following news item of particular interest to military modellers:

Two United States companies are producing lines of inexpensive soldiers in 1:32 scale which have a high degree of accuracy. The Louis Marx Toy Co, of Glen Dale, West Virginia, issues lines of American, German and Japanese soldiers in a wide array of positions. For example, there's an American officer reeling, his helmet half off, his pistol dropping from his hand at the moment of impact from a bullet. A German soldier has his helmet pushed back on his head, a machine gun slung over his shoulder and belts of bullets around his neck. A Japanese officer leads a banzai attack in a high-stepping 'charge' position.

The Marx soldiers are sold, 100 to a bag, for a dollar in the United States. In addition, special sets are sold under the names of 'Tank Battle', 'Iwo Jima', 'American Patrol' and so on. Since these sets are aimed at a 'boy' market, the manufacturer can't be faulted for throwing in army equipment that is a bit off-scale in relation to the soldiers. Anyone interested in making dioramas would find the sets worthwhile for the main ingredients, from tank barriers to a wrecked segment of a building.

All the soldiers are unpainted, being a solid colour. They are of a polyethylene material and suffer from 'wavy' rifles and bayonets. With painting and the addition of metal rifles where needed, the figures are good. Some plastic weapons stay straight, or can be straightened satisfactorily.

Multiple Products, of the Bronx, NY, has begun a Warriors of the World bagged series with American, German, Japanese and Russian figures. The Russians are especially distinctive in being the only 1:32 scale Russians available in North America. These lines are being manufactured by Somerville Plastics, of Bramalea, Ontario, and presumably could be exported to England under Commonwealth preferential tariff. (There's a Marx subsidiary in Swansea, Wales.) Detail and action of the figures are good, illustrating the advantages of a plastic-type figure. The Multiple figures are packed 60 to a bag.

If the Marx sets aren't available in the UK, arrangements can be made to have them shipped by Sears, Roebuck & Co, 4640 Roosevelt Blvd, Philadelphia, Pa, 19132, USA, to the attention of the Export Department. These sets range from \$7 to \$10 in price.

H.R.W.M.

AIRCRAFT TRANSFERS

A SET of eight different sheets of national markings in either matt or gloss are now available from the American Hisairdec company and are marketed in the UK by BMW Models of Wimbledon at 3s 6d each. Countries included are Spanish Nationalist markings during the Civil War, Finnish markings for a Buffalo, Turkish markings for an Fw190, Croatian markings for a Bf109G and Dutch

markings for a Buffalo and a Fokker D21. They are all in 1:72 scale and will fit existing models from Frog, Revell and Airfix.

Other markings also recently introduced by Hisairdec are sheets of identification letters and numbers for United States aircraft, also in 1:72 scale and selling for 5s 3d. Three sheets are available in black, white and grey.

Although rather expensive, the enthusiast will doubtless want these markings, especially the letters and numbers as they are accurate in outline and colour. The only criticism is that each letter is not on an individual slide transfer, and the model maker has to cut round the outline of the letter very carefully to avoid the background showing. A.W.H.



Top: The Airfix Bf109G displays Croatian markings from the latest releases by Hisairdec. **Centre:** Tamiya Walker Bulldog with the cover left off the power unit to show the four V-11 batteries not supplied with the kit. **Bottom:** Patton with the decking removed to show the engine installation. All these items are available from BMW Models.

CANARD FROM JAPAN

ONLY three canard, or tail first, aircraft reached prototype stage in the last war. Of these, the Kyushu J7W1 Shinden was perhaps the most interesting. Tamiya Models, the Japanese manufacturers, have produced a very excellent 1:72 scale model of this aircraft complete with small electric motor, operated from a battery in the stand, to make the propeller blades revolve.

Whether you agree with this type of gimmickry or not, the model itself does not suffer in any way through having the motor added and, although I constructed the review sample without the motor, I am sure that there would be little difficulty in incorporating it.

The basic kit was easy to construct, having few flaws. It was also accurate in outline and I am sure it will make an excellent addition to any 1:72 scale collection. It can be obtained at 9s 11d from BMW Models of Wimbledon, who supplied our review sample. *A.W.H.*

THREE MORE WWI AIRCRAFT

COLLECTORS of World War I models in 1:72 scale will be pleased to know that three more new models have been released by Revell to join their other contributions which mark the early days of military aviation.

The three new kits are of a DH-2, Morane Saulnier 'N' and Fokker E-III. They are all good value for two shillings, and make up into attractive models. Each one requires bracing wires to make it look really authentic, and it is in this respect that the enthusiast will be able to spend a great many hours carefully threading fine nylon strands to give them that 'little extra' so many models lack. The fully detailed plans give a great deal of help in showing where the bracing wires go, but reference to the Harleyford publication, *Fighters of the First World War*, will add a lot to existing knowledge.

I also found from this book that No 3 and No 60 Squadrons of the RAF used the Morane Saulnier 'N', which was known as the 'Bullet' in that service. There's also a photograph and, as can be seen from the illustration accompanying this review, I used the information given to change the markings on the review kit. Originally it had the markings of the Imperial Russian Air Force.

Each of the new models has the surface of the wings and fuselage slightly grained to simulate the stretched canvas used in these aircraft. The DH-2 has the largest number of parts—40 to be exact—whereas the other two have 25 each.

Care will have to be taken in the assembly of these models, but there is great need for models of aircraft of this period. *A.W.H.*

REMOTE CONTROL TANKS!

THE flow of model AFV kits from Japan has been given a big boost by BMW Models of Wimbledon, who are now importing seven further items from the Tamiya Model range.

Starting with the cheapest, at 13s 6d, we have the Swiss Mowag 4 x 4 heavy armoured car tank destroyer which, to 1:35 scale, goes with the Saladin and Coventry armoured cars reviewed a few months back. Like them, it is fully motorised and, in fact, utilises the same motor, power pack and controls. Assembly is quite straightforward, and the completed model is very much more accurate than its predecessors.

The next two on the list, retailing at 23s 6d each, are a Panther and Jagd Panther—rather curiously called a



Top: Tamiya kit of the Shinden is to 1:72 scale, and is available from BMW Models. **Centre:** Three more Revell 1:72 scale WWI aircraft—Morane Saulnier 'N', Fokker E-III and DH-2. **Bottom:** Revell replica of McHale's Navy PT-73.

'Rommel' by the makers—which unfortunately are much less successful. Although we did not make up these particular kits, it took only a cursory inspection to discover that both were far out in scale dimensions, the Panther very much so. This model has only the most rudimentary suspension, bearing no resemblance to the real thing. The appearance of the Jagd Panther, on the other hand, is made much more acceptable by the correct number of interleaved road wheels, even though they are the wrong size.

Both models are motorised with a single electric motor driving both tracks and controlled by a forward/reverse/stop switch at the rear. 'Gimmicks' in the shape of a flashing gun muzzle on the Panther, and a gun which fires plastic shells (ten provided) on the Jagd Panther are features which will probably make these two kits more acceptable to younger modellers than the keener enthusiasts.

What could possibly become a feature of wargaming in the future is the rather exciting prospect offered by the remaining kits reviewed here. These are tanks which you can actually drive into battle, and with a performance matching the prototypes into the bargain! We have had a lot of fun making and running two of these—a Walker Bulldog M41 (27s 6d) and a Patton M48A2 (37s 6d), both well-known US Army types. Basically, these incorporate a separate Mabuchi motor driving each track, and each independently

Continued on next page

New kits and models—Continued

controlled from a push-button remote power unit on a flexible lead.

So you drive the tank by walking along behind it and steering by reversing or stopping the appropriate track. In fact, the model goes roaring along like a real tank, lurching slightly from side to side as you apply steering corrections. Quite severe obstacles can be negotiated in this way; our Walker Bulldog crosses a five inch trench with ease and takes a seven inch high knife-edge in her stride with fresh batteries. She can also climb up the keyboard of a portable typewriter, cross the top and jump down the other side with modest ease, not to mention climb 45-degree inclines.

The power/weight ratio of the Walker Bulldog seems to be ideal; the much larger Patton, using the same motors, is more sluggish in performance, though this may be caused on our sample by a gear wheel slightly out of mesh, which gave some trouble in the early stages of 'trials'. This sort of thing seems to be very much the luck of the draw, however, with these cheap Japanese motors. From the appearance point of view, the Walker Bulldog suffers from some distortion in places, but the Patton is pleasingly accurate. At 1:35 scale, both these models go well with Britains' plastic soldiers and spring-loaded guns. Some life-like battles should be possible with all this working equipment!

In the luxury class altogether come 1:21 scale kits for a Sherman M4A1E8 and an M40 self-propelled 155mm gun. These are breathtaking models, both virtually 100 per cent accurate and with many working features. Both are motorised, with remote control or, optionally, with fixed controls. Needless to say, the size is immense and the kits are impressive value at £3 17s 6d each. Definitely among the year's best status symbols. *C.O.E.*

OO/HO GAUGE DOUBLE SLIP

THE latest addition—a double slip—to the Graham Farish Formoway range of OO/HO gauge trackwork is the best yet. It follows usual Graham Farish practice of a moulded plastic sleeper base incorporating frogs and check rails, and the two-rail insulated running rails are drawn nickel silver. A new and very welcome feature is the metal reinforcement given to the holes in the ends of the switch blade tie bars. I understand this feature is to be extended to all Formoway points. The 3 ft radius double slip measures 10½ inches long and is very reasonably priced at 35s. Our sample model was particularly well made, with all the rails accurately aligned, machined and cut without any rough edges.

We have received advance information of yet another new Formoway track formation, a diamond crossing. No details are available at the moment, but we hope to be able to give further information in a later issue. *N.S.*

LIGHT RELIEF

WE recently had a varied mixture of plastic construction kits submitted to us for review by Revell (GB) Ltd. These included a handsome 1:72 scale (this size seems to be becoming increasingly popular for non-aircraft models) replica of PT-73, the torpedo boat featured in the television show 'McHale's Navy', and four 'monster' kits. These are all to designs by Ed 'Big Daddy' Roth—leader of this cult in the States—and depict Brother Rat Fink on a bike, Angel Fink, Superfink and a double kit of Flash Gordon and a Martian.

McHale's PT-73 is made up of 79 nicely moulded parts, and detail includes ventilators, exhaust stubs, multiple rudders and propellers, torpedo tubes, machine guns, a life raft, anchor, siren, flag staves, stanchions and a steering wheel. Also included are four scale figures recognisable as the stars of the TV show—McHale himself, and crew members Binghampton, Parker and Gruber. This excellently detailed kit is priced at 10s 6d and, with its deep and broad hull, should provide conversion fans with plenty of scope for motorisation.

The 'monster' kits seem a bit horrific when you first open the box, but they quickly prove to be a lot of fun when you build them. As time was pressing, we could only put one of them together, and our choice was the 35-part Brother Rat Fink on a bike. Brother Rat has jointed arms and wrists and can be seated on what can only be described as a 'way out' motor-cycle. This features revolving wheels—with a drag racing tyre on the rear—and a footrest allowing display of the finished and garishly painted 'monster'. These kits are a good way of introducing a light note into an otherwise perhaps-too-serious hobby. They cost 14s each. *D.C.N.*

1:25 SCALE CARS

TWO samples we have received of a new range of 1:25 scale car kits by Revell include some exciting new developments. Perhaps the most interesting of the two is the 1956 Chevrolet two-door coupé, price 25s. As well as

Below: Brother Rat Fink—one of Revell's Ed Roth-designed 'monster' kits. Bottom: New Graham Farish OO/HO gauge double slip.





Two new 1:25 scale Revell car kits—the 1929 Ford Model 'A' (top) and the 1956 Chevrolet two-door coupé.

an opening bonnet or hood, which reveals a very detailed stock or custom V8 engine, the boot lid opens and so do the two side doors. In view of the detail work that goes into the interior, this latter development is a very welcome new feature.

Another new idea is the provision of separate chrome exterior body trim strips. As well as being much more realistic than the old idea of detail moulded with the body and picked out with silver paint, these trim strips can easily be modified without carving the bodywork. Three alternative styles of trim are supplied to suit three different models, Series 150, 210 or Bel-Air, and the trim can, of course, be omitted or arranged in other ways for customising.

Yet another new feature is the steerable front wheels. All wheels revolve on steel axles and are shod with rubber tyres. The main body parts are moulded in white plastic and the chassis, engine and mechanical parts are in black. Wheel discs, bumpers, headlamp rims and many other details are chrome plated, and headlamp and tail lamp lenses are moulded in clear or clear-red plastic.

The second kit, a model of the 1929 Ford Model 'A' Pick-up, also costs 25s. In America this is a favourite vehicle for the hot rodder or customiser. One of two models are

possible, either a closed cab or open roadster version. In both cases the side doors are designed to open. Another very welcome feature is the properly hinged bonnet, which opens to reveal either a stock or customised engine according to choice.

The model can be fitted with either stock wire wheels or American racing wheels, and appropriate rubber tyres are supplied. Steel axles and steerable front wheels are as on the Chevy. All parts are moulded in white, chrome or clear plastic. One instance of attention to detail is a thin sheet of adhesive-backed wood veneer supplied to give the correct appearance to the pick-up floor.

Both these kits are well designed and made and show a creditable amount of detail. Eight-page, fully illustrated instruction booklets make either model straightforward to assemble and the result is a fine replica of its respective prototype.

N.S.

1:32 SCALE PANHARD

IT's not often that we get the chance to review kits other than those from this country, the USA or Japan, and so the arrival of a model from the French 'Europe Model Kits' company came as a welcome change. Our sample was supplied by Auto-Models Ltd, who have stocks at 12s 11d each, and is a colourfully boxed 1:32 scale replica of one of the earliest motor cars ever built, an 1895 Panhard et Levassor coupé de ville.

In all, there are 50 exceptionally well-moulded black plastic parts that go into the Panhard's construction, and these include finely spoked 'cartwheels', brake assemblies, tiller steering mechanism, mudguards, lights, interior fittings and transparent plastic windows. The instruction sheet is in French, but the exploded drawings are largely self-explanatory, and assembly was quite straightforward.

The type of plastic used in this kit is very sensitive to polystyrene cement, and while this is a boon in allowing parts to stick firm with the very minimum of cement on them, it is very easy to damage the surface with cement 'burns'. Also, several of the parts are quite small and a pair of tweezers will come in very handy. This is a fine scale model of a most unusual prototype, and a real collector's piece.

Other news from Auto-Models is of another release in their all-metal Auto-Kit range of models. This is again to 1:24 scale, and is of a 1932 Alfa Romeo P3 single-seat racing car. With accurate suspension and cockpit detail, wire wheels, knock-on hubs and realistic body lines, the kit costs 59s 6d.

D.C.N.

DIE-CAST ROUND-UP

EXTREME pressure on space in our last few issues has squeezed out several intended references to the latest releases in the die-cast field. However, to put the record straight, Corgi have released a Ford Mustang 2 + 2 Fast-back coupé (priced at 6s 9d), a superbly detailed Lotus Elan (5s 6d), and a Dolphin 20 cabin cruiser on a Wincheon trailer (6s 6d). Lesney have added a Pontiac Grand Prix sports coupé, a Routemaster bus, an eight-wheeled mobile crane, a Cadillac ambulance, a BRM racing car and a Mercedes coach to their 2s Matchbox range. In conclusion, Dinky's latest models cover a mixed range of subjects, with an Aveling-Barford Master Pavior road-roller (9s 11d), a Plymouth Fury sports car (7s 11d), an Aston Martin DB5 convertible (9s 11d), a Beechcraft Bonanza aeroplane (6s 11d) and another variation on Meccano's Bedford TK chassis, a Castrol Oil box van (10s 6d).

D.C.N.

Airfix prize winners

AIRFIX Products ran two competitions on their stand at the successful National Model Show. All those who purchased copies of Airfix catalogues or AIRFIX magazines were automatically entered for a chance to win daily prizes of Airfix construction kits up to the value of 17s 6d. The five winners of this contest were: A. Dewings, 21 Dean St, Exeter, Devon. Robert Probert, 5 Smallstones Cottages, Goathurst Common, Ide Hill, Sevenoaks, Kent. Charles Thomas, The Haven, 7 Ash Green, Springfield, Chelmsford, Essex. Stephen Stubbs, 23 Dorchester Rd, Northolt Park, Greenford, Middx. A. W. Williamson, 31 Main St, Rutherglen, Glasgow.

In addition, those who purchased Airfix products at the Show were thereby entitled to try out the motor racing circuit on the Airfix stand,



The Airfix stand was the first to be visited by Stirling Moss after the opening ceremony. This picture shows him slot-racing against ten-year-old Martin Mason on the Airfix Motor Racing layout, where he showed a keen interest in the cars.



Popular feature of the Airfix stand at the Show was a military layout comprising a number of model conversions made by AIRFIX magazine's military modelling correspondent, C. O. Ellis. The layout featured a beach head with British troops landing on German-held territory. Part of the layout is shown in this picture.

competing for daily prizes of motorised conversion kits, and an overall prize of an Airfix MR185 Motor Racing set. Entrants had to answer a simple quiz and give a slogan for Airfix in not more than ten words.

Daily winners of this competition were: R. Delahay, 95 Queen Adelaide Court, Penge, London, SE20. Ed Flavin, 133 Harley St, London, W1. Nigel Jackson, 52 Farnaby Rd, Bromley, Kent. D. Murrills, 134 Stroud Crescent, Putney Vale, London, SW15. Keith Seume, Willowdene, Firacre Rd, Ash Vale, Nr Aldershot, Hants. Best overall entry came from Andrew Price, 8 Dellwood Gdns, Clayhall, Ilford, Essex.

The motor racing quiz questions (with the answers in brackets) were as follows: (1) Who won this year's Indianapolis 500 mile race? (Jim Clark). (2) Who was last year's World Champion driver? (John Surtees). (3) How many times has Jim Clark won the World Racing Championship? (Twice). (4) Who has won more World Championship titles than any other driver? (Juan Manuel Fangio). (5) Which Grand Prix team does Graham Hill drive for? (BRM).

AIRFIX magazine

Letters to the Editor

Letters to the Editor can only be answered in the magazine. Readers whose letters are published each receive a free Airfix plastic construction kit of their choice. We are always pleased to receive your comments and pictures, which will be considered for publication. Submitted material and pictures can only be returned if accompanied by a stamped addressed envelope, and the Editor cannot accept responsibility for safe keeping of any such contributions, neither does he necessarily agree with comments expressed by correspondents in the letters column.

First-hand information

AS an ex-Centurion crewman, I can assure you that they do have rollers behind the idler and in front of the sprocket. Perhaps the trouble comes from the fact that they are only half as wide as the four normally seen.

I have several photos showing them on all marks (I was on Mark IIIs) up to Mark X.

On my own model I have solved it by simply cementing half of the fifth roller supplied in the kit, behind the idler.

I think C. O. Ellis's articles are excellent and I have made most of his conversions. I have just finished making a Tiger II and am very pleased with the result. It was built from the Panther and Tiger kits and a Bellona print. Can anyone help me by supplying April and May, 1964, articles on the Stalin and assault gun?

Finally I might say we are doing well for German models; what about a Crusader, Matilda, Valentine, Cromwell, Comet? It's about time us 'tankies' got the same service as the aircraft fans, who get at least one new kit a month. Anyway keep it up Airfix.

G. Clark, Hull, Yorks.

Centurion rollers

IF I may be permitted to reply to Mr Leader Cramer, who disagreed with me in your August issue, I would mention the following.

The two steel rollers each side were fitted, as described, on the majority of Mark III tanks in my unit in 1954-6.

The recent booklet on 'British Army Vehicles and Equipment—Armour', by R. E. Smith, has photographs of two Mark Vs and a Mark VII Centurion clearly showing these rollers. On the other hand, a Mark II in the same book has a steel roller in front of the sprocket only. This is similar to a few of the older tanks that I can recall and suggests that first

one, and then two steel rollers were tried out on Mark IIs or early Mark IIIs and fitted on all subsequent models.

Norman F. Bradley,
Upper Breinton, Hereford.

Quarter scale DH-4

UNDER the heading of 'More for aircraft modellers' (AIRFIX magazine, August), it is stated that a model is manufactured of every aircraft presented in the Profile Publications with the exception of the DH-4.

Aurora has had a fine $\frac{1}{4}$ scale model of the DH-4 for many years.

James H. Sage, Director,
IPMS—USA, Dallas, Texas.

Best yet

YOUR military modelling correspondent, C. O. Ellis, has had many good articles in the past, but his article on the assault guns in the August number is in my opinion his best. The pictures were very interesting, the drawings clear and the text most informative. One small mistake—the Sd Kfz 142/1 came into action in spring, 1942, not 1943, as in the article.

The Sd Kfz 142/2 had no muzzle brake on vehicles built from 1944 and the rest of the war. I hope that Airfix will produce the Panzer IV soon in order for us to build the minimum of 13 conversions Mr Ellis, with his great talent, can describe.

Axel Duckert Jr, Copenhagen,
Denmark.

Making 'sea'

I WAS wondering if you could possibly give me any advice on how to make an imitation 'sea' for a flying boat?

I recently bought one of the Airfix Sunderland flying boats and upon completion I decided to dispense with the landing gear and make a 'sea' for it to rest on. I cut a board, slightly larger than the flying boat, and poured a mixture of plaster of Paris over it, but I was unable to mould it into any shape as it dried too

quickly. I did not give up here as I was determined to mount the plane, over which I had taken much time and care constructing.

This time I laid down fine wire and shaped a 'sea' out of this wire. I poured plaster of Paris over it, but again I was unable to work it. As a last resort I laid down a layer of putty on a fresh board. Unfortunately this did not work either, as the putty would not harden enough nor would it stick to the board.

I don't know what to do now as I am determined that I'll have my Sunderland mounted on a 'sea' one way or another. I have already wasted quite a bit of money trying out these ideas. Apart from that the mess I made was terrible—plaster of Paris sticking everywhere, and everything stinking of putty! If you could suggest any way that is simple and not complicated I would appreciate it very much indeed.

P. G. Worman, Cape Town, South Africa.

We know of some modellers who have had success with making 'sea' from crinkled Cellophane, using white paint to touch in wave crests and wakes.—Ed.

Out of mischief

AFTER two or three years of plastic modelling (largely, but not exclusively, Airfix) plus regular reading of your magazine, I have come along to take for granted the repeated tributes to value, accuracy and quality which appear from time to time. Far from resting on their laurels on the strength of these plaudits, the firm have continued to introduce new kits at a rate that has induced misgivings in at least one man lest the supply of fresh prototype ideas be exhausted—not that advice in this matter is in short supply!

However, I have come across a facet of the activity so far quite unsuspected and in a place where it was unexpected, to put it mildly. For me, modelling perforce tails off in the spring, to be replaced by vegetable gardening operations, house painting and preparations for the annual 'expedition', and my

Continued on next page

Letters to the Editor

Continued

mind becomes filled with things like wide open spaces, heather, hills and streams.

This year ran true to form, and mid-July found me on the A9 en route for Inverness and points beyond. Coming to Aviemore, I stopped for a few purchases and went for an idle look into the outfitters' shop full of windproofs, rainproofs, knobby boots, ski gear and the like, just as one would expect in the main ski resort for the Cairngorms.

Then, to my great surprise, I saw a tray full of Airfix kits, only the smaller ones in envelopes admittedly, but Airfix kits nonetheless. I commented on this to the manager who said, 'Oh yes, I do a fair trade in these among the campers. They keep the children out of mischief in bad weather.' My unspoken thought was 'Airfix kits keep many other than children out of mischief'.

Is there no limit to the long arm of Airfix? My next excursion to these parts may well take the form of finding out just how far north or off the beaten track one must go to shield, croft or bothy before mention of the name produces only a blank stare!

J. Stilwell, Croydon, Surrey.

Is this a record?

IN the June issue of AIRFIX magazine, D. G. Palmer said he had a model Halifax bomber which had spent 13,000 hours in the air. He said he thinks this is a record.

I have a Lancaster which has had four years 'flight'. It has lost all its guns, three propellers and one aileron. I feel this is quite an achievement, as the model was not very well made in the first place!

T. Hewett, Broadstairs, Kent.

Exhaust markings

CONGRATULATIONS on the Airfix model of the Catalina, which I converted to the USN version as described in your December, 1964, issue.

One tip I would like to pass on to other modellers concerns the making of exhaust 'smears' on model aircraft. This is done while the paint is still wet. Hold a burning candle about an inch or so under the part which is to be blackened (being careful that the flame does not set fire to the wet paint) and, starting from the end of the exhaust, move the

candle backwards, gradually moving faster so that the blackened area tends to fade out. It is best to test for a few times first on scrap plastic.

Ian Gowling, Adelaide, South Australia.

Stencilled swastikas

I HAVE been reading the letters in the July copy of AIRFIX magazine, and would like to pass on to Eric A. Stagg my method for overcoming the lack of swastikas for the German aircraft kits.

For my kits I make two swastika stencils, one slightly smaller than the other. Using the larger of the two, I paint a white swastika on the aircraft. When the paint has dried, I place the smaller stencil exactly in the middle of the white swastika and paint it in black. This gives a black swastika with a white outline.

There seems to be an acute shortage of Japanese aircraft. The only one I have been able to purchase in the Airfix range is the Zero, and I hope that other Japanese aircraft kits will be manufactured by Airfix.

Ian R. Newbery, Foxton, Herts.

Painting canopies

WITH reference to the letter from Andrew Oxley (August issue) I find that a matchstick, suitably sharpened then dipped in paint of the appropriate colour, is the best method I know of painting canopies, as the short length of the matchstick does away with shaking of the hand. This method is better than painting with a brush as this usually has a stray hair which tends to give an extra line.

Alan McKenna, Glasgow, W2.

RAAF Liberators

IN the December, 1964, edition of your magazine, R. M. Algar gave some details of a Liberator of the RAAF. I would like to add a few more details about this aircraft, (MJ-W) and some of its sister ships.

Firstly, MJ-W was not a B-24J but a B-24H. Secondly, the olive drab panel extended from the cockpit to the middle of the astrodome, and thirdly the black 'V' formation sign was in a horizontal position, such that its base ended just forward, and was as wide as, the fire-flash. Unfortunately, I could not find out the serial number.

A72-38 was coded GR-G to starboard and G-GR to port. The G was between the waist gun position and roundel, as was the W in MJ-W. A72-38 also carried the 'V' formation sign, but its

position was reversed—the fin flash and base of the 'V' was to the fore of the fin. No fin flash was carried on the inside of the fins.

Another Liberator was GR, a B24H, the codes GR being carried aft of the beam positions. It had no 'V' formation sign, the fin flashes were forward on the outer fin faces and none was carried on the inner faces. The beam positions were all perspex.

On all three aircraft, the pitot tubes on the nose were not carried; in just what position they carried them I do not know. (A72-38 was a B24H also, and she and GR had olive drab panels the same as MJ-W.)

G. Cock, Adelaide, South Australia.

Ditched!

ON the front of the Airfix Walrus kit box is shown a scene depicting an airman being rescued in his dinghy, while in the background his plane is sinking. I have thought of a way to show this scene in model form.

A base is covered with putty to give a 'sea' effect. Before this is dry, three things must be done. The first is to place the Walrus on the 'water', also a dinghy from the US Marines with a converted Spitfire pilot in it and, finally, the tail of a broken Spitfire or a piece of the wing.

If you do not want to use the rest of the Spitfire you can just place the whole Spitfire in and put pieces of putty as 'lapping waves' against it. For added realism, the Spitfire can be passed over the flame of a candle to give it that 'burnt-out' look and, of course, the sea must be painted.

My father and I are very keen Airfix modellers and would like to see some Japanese armour and/or some British military vehicles from the 'twenties to the late 'thirties.

Paul Chaloner, Bebington, Cheshire.

Pen-friends wanted

THE following readers have written to the Editor requesting pen-friends. Mike Macallister (16), of 552 E. Mountain View, Glendora, California 91740, USA, would like a pen-friend in England. John Shaw (12), of 34 Madeline Street, Melbourne, Victoria, Australia, is interested in corresponding with an English modeller who would be willing to exchange aircraft models. Govind G. Gradgil, of 10/77 Unnatnagar Part III, DHP Colony, Goregaon (West), Bombay 62, India, wants a pen-friend in England, with whom he can exchange Airfix kits for Indian handicrafts, books, etc. John Steadman, of 102 Speldhurst Road, Southborough, Kent, would like a Scottish pen-pal aged 10-12 who is interested in model planes, mainly WW2. Mark Burton (13), Bonneycroft Lane, Easingwold, Yorks, would like a pen-friend, preferably in Scotland or Northern Ireland, who is interested in plastic model aircraft, stamp collecting and model soldiers. Interested readers are invited to establish contact direct, at the addresses given.

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R. Humphrey, 39 Brockenhurst Road, Croydon, Surrey.

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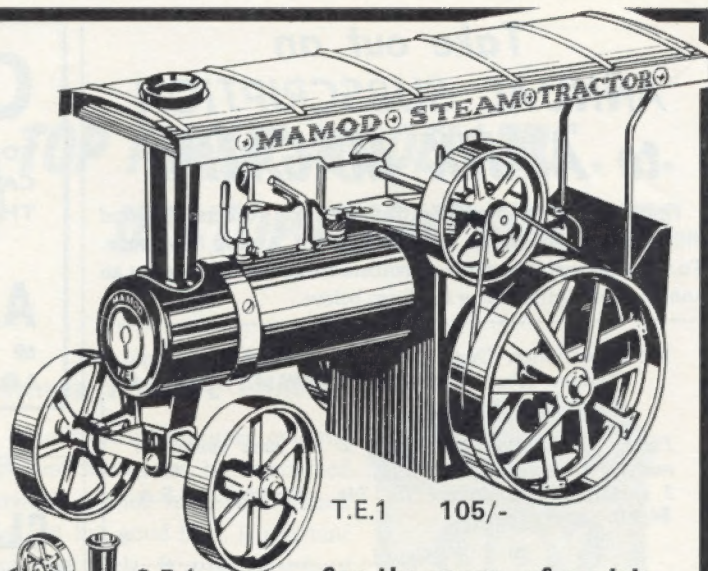
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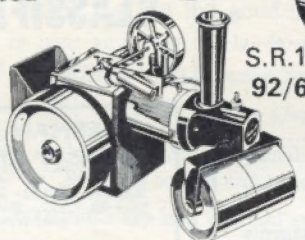
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